US 60 CORRIDOR DEFINITION STUDY

FINAL REPORT

Prepared for

ADOT

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1. INTRODUCTION

This document presents the results of the US 60 Corridor Definition Study conducted between October of 2004 and November 2005 by the Arizona Department of Transportation (ADOT). The study was conducted in close coordination with two parallel ongoing corridor definition studies *Pinal County Corridors Definition Study* and the *Williams Gateway Corridor Definition Study* within northern Pinal County. The corridor definition studies together address four corridors originally identified by the Southeastern Maricopa and Northern Pinal County Transportation Study.

PURPOSE

The US 60 Corridor definition study was originated by the legislative mandate (Arizona State Laws, 2004, Chapter 2, Section 26) to:

- "Further Define corridors identified in the Southeast Maricopa/Northern Pinal County Transportation Study (SEMNPTS) for right-of-way preservation"
- Provide the State Transportation Board with information needed to "consider the identified corridors as state highways in the state system"

The US 60 Corridor Definition Study's primary goal was to recommend to the State Transportation Board (STB) if improvements are needed in the corridor, and, if so, recommend the general location of the corridor and type of facility needed. The study also evaluated whether the corridor should be considered for designation as a state highway, or if further study is warranted for that consideration.

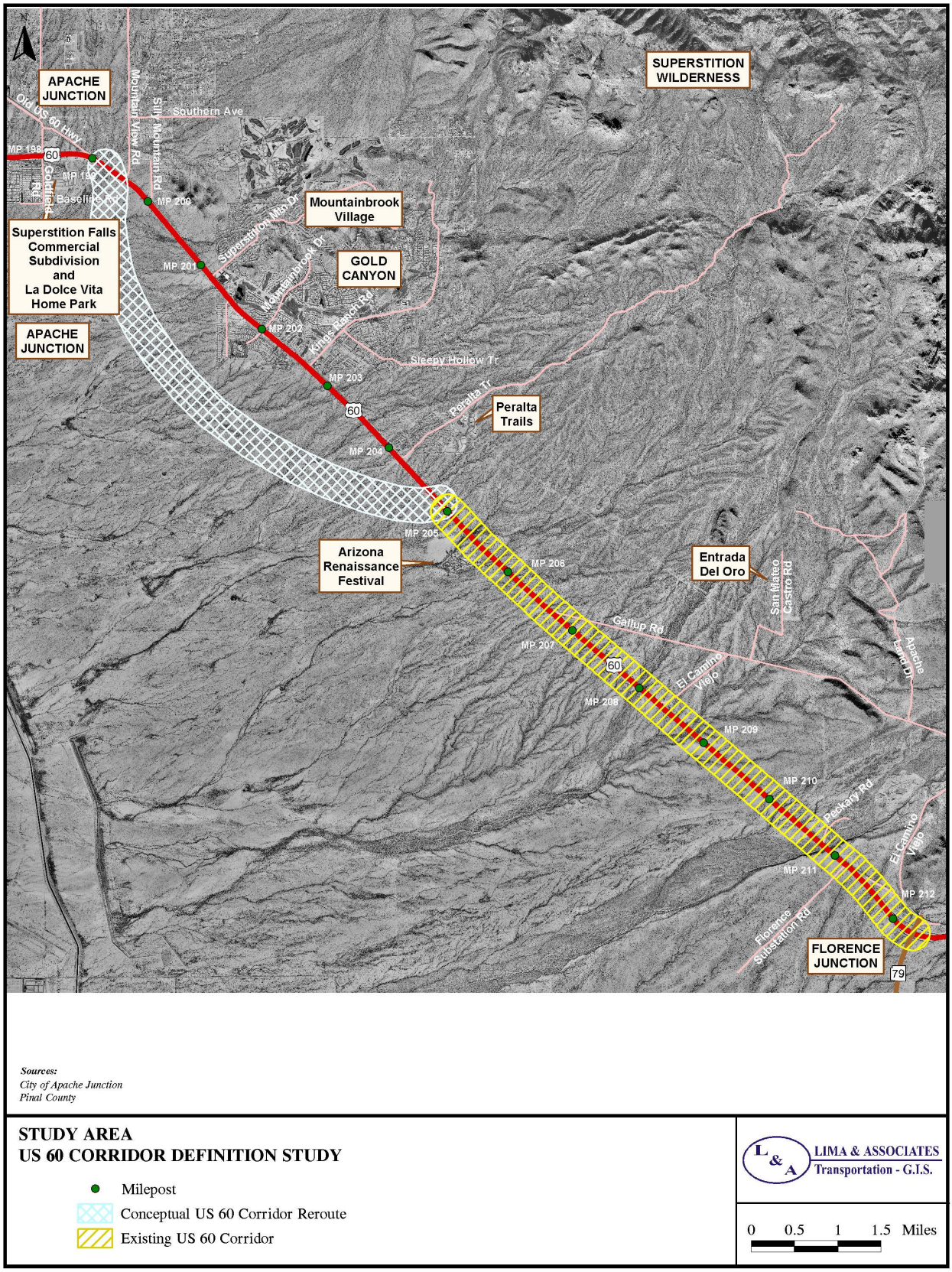
In this context the purpose of the study was to further define the possible US 60 Corridor from the Superstition Freeway to Florence Junction, including the possible reroute of US 60 in the Gold Canyon area. The potential reroute of US 60 would begin at the existing terminus of the US 60 freeway at Goldfield Road traversing southeasterly, generally paralleling the existing US 60 then connecting back to existing US 60 at approximately MP 205.0. The corridor would then continue along the existing US 60 alignment for approximately seven miles to SR 79 at Florence Junction. The total length of the study area is fourteen miles.

The study area definition builds upon the Southeast Maricopa/Northern Pinal County Area Transportation Study and also evaluated the potential benefits of the study area on the existing state system in Pinal County.

CORRIDOR OVERVIEW

US 60 crosses Arizona for 368 miles from I-10 in La Paz County to the New Mexico Border east of Springerville. The study area shown in Figure 1 is located along US 60 in Pinal County between milepost (MP) 199.0 and Florence Junction (MP 212.0), a distance of

FIGURE 1. STUDY AREA



fourteen miles. Within the Phoenix Metropolitan area US 60 is an urban freeway (Superstition Freeway) from I-10 in Tempe to Mountain View Road in Apache Junction, a distance of 27 miles. The terminus of the Superstition Freeway in Apache Junction ties into a four-lane divided highway with limited access control. Development in the Gold Canyon area has forced the construction of traffic signals near the terminus of the freeway.

The foremost issue regarding the US 60 corridor is the pace of development in the study area. Pinal County is rapidly developing with many sections of farm land being quickly transformed into residential and commercial uses. Over 280,000 housing units have been approved by the County. Developments in Maricopa County have now extended into Pinal County, such as Johnson Ranch. Moreover, many sections of State Lands are located south of Apache Junction between the Maricopa County boundary and existing US 60. The eventual release of these State Lands will undoubtedly attract more residential or commercial growth and subsequently stress the transportation systems in both Pinal County and Maricopa County. The existing system will soon be inadequate to serve future mobility needs and State highways in northern Pinal County will become over burdened including US 60, SR 87, SR 79, and SR 77.

COORDINATION AND PUBLIC INVOLVEMENT

The US 60 Corridor Definition Study has been undertaken with extensive agency coordination and public involvement. In addition, close coordination has been maintained with the other two ongoing Arizona Department of Transportation (ADOT) Corridor Definition Studies: Williams Gateway Freeway Definition Study and the Pinal Corridor Definition Study. The following coordination activities and public involvement activities were carried out. (Detailed information on the public participation efforts are documented in a series of summary reports).

Technical Advisory Committee

The study has been guided by a Technical Advisory Committee (TAC) comprised of representatives of ADOT, Federal Highway Administration, Pinal County, Maricopa County Department of Transportation (MCDOT), Maricopa Association of Governments (MAG), Central Arizona Association of Governments (CAAG), City of Apache Junctions, Town of Queen Creek, Valley Metro, and the State Land Department. Meetings were held to discuss major issues, identify potential solutions, and to review the transportation needs analysis.

Joint Technical Advisory Committee (TAC) Meetings

In addition to the US 60 TAC meetings, two joint TAC meetings were held comprised of the TAC members of each of the three ADOT Corridor Definition Studies. The joint meetings were held to review the needs analysis and the results of the feasibility analysis.

Stakeholder Group Meeting

Two rounds of stakeholder group meetings were held in the Apache Junction/Gold Canyon area to identify issues and potential solutions, and to provide feedback on the corridor concept. The stakeholder meeting participants were comprised of representatives from the City Apache Junction, Pinal County, State Land Department, CAAG, Gila County, business associations, citizen's organizations, and the public.

Agency Meetings

Individual agency meetings were held with Pinal County and the Arizona State Land Department to discuss issues, identify potential solutions, and to discuss the proposed corridor definition concept.

Public Open Houses

Two Public Open Houses were held. The purpose of the first Public Open House was to discuss the study approach, identify existing and future conditions, and obtain input from the public on the issues and potential solutions. The purpose of the second Open House was to present the corridor needs analysis and feasibility analysis for all three Corridor Definition Studies and to obtain input from the public on the systemwide corridor concept as well as on the concept for the individual corridors.

State Transportation Board Meeting

The systemwide corridor concept for northern Pinal County was presented to the State Transportation Board (STB) on October 4, 2005. A presentation was made discussing the needs analysis, feasibility analysis, and systemwide concept. The public made comments to the Board in regard to the needs and concept.

Other Public Involvement Activities

Documents and maps for all three Corridor Definition Studies were provided on the ADOT Website. A database listing thousands of individuals was maintained for all three studies. Individuals were informed of key meeting dates by E-mail, postcard, and press releases.

Response to Public Input

After the second set of Open Houses was completed, ADOT management and staff received numerous requests for additional discussion about the recommended corridors presented

during the Open Houses. In response, ADOT management chose to conduct individual stakeholder meetings with each of the jurisdictions within the study area for the three corridor definition studies to gain a better understanding of the concerns. Eleven additional stakeholder meetings were conducted between November 2005 and February 2006 with jurisdictions, groups, and individuals impacted by the plan.

Many of the stakeholders voiced an opinion that growth in the area will be more rapid than projected by this study and that the corridor concept should be refined to recognize the possibility of faster development by designating specific freeway corridors within the 2030 time frame or perhaps earlier. In addition, as a result of the uncertainties, several stakeholders thought that ADOT should consider the ultimate build-out system, instead of a system designed for 2030. Based on comments from the stakeholders, the systemwide concept in Pinal County was revised. The revisions were presented by ADOT at three public meetings in Gilbert, Florence, and Queen Creek. Final systemwide recommendations were presented to and approved by the ADOT Transportation Board on February 17, 2006 in Casa Grande.

SUMMARY OF STUDY FINDINGS

Previous Studies and Plans

A series of studies and plans have been previously conducted for the roadway corridor itself as well as adjacent areas. For example, the 1999 Design Concept Report and Environmental Assessment examined major improvements on existing US 60 including frontage roads and grade separated interchanges. The uncompleted 2003 US Design Concept Report examined a "bypass" alternative south of the existing US 60 from the Superstition Freeway to MP 205 just west of the Renaissance Festival Site. Currently a study is underway by the Morrison Institute to determine the land use concept for the Arizona State Lands south of Apache Junction and west of US 60. Findings from the previous and ongoing studies served as input to the US 60 Corridor Definition Study.

Current Demographics and Land Use

The area the study area traverses has experienced dramatic growth over the last 14 years. Between 1990 and 2000, Pinal County grew by 54.4 percent and Apache Junction by 75.8 percent. Outside of private development in Gold Canyon, land ownership in the study area is primarily under the management of the Arizona State Land Department (ASLD) with the exception of some scattered large private parcels between Gold Canyon and Florence Junction. Much of the privately owned land within the Study area is built out. New major residential and commercial growth will only occur on private or Arizona State Land Department lands. Annual events such as the Arizona Renaissance Festival, the international Traditions Golf tournament, and the Lost Dutchman Marathon, as well as numerous trailheads in the Superstition Mountains and White Canyon Wilderness area attract many visitors year round.

Physical and Environmental Conditions

Topography and Drainage

Described as "valley topography," the study area is composed of alluvial fans southwest of the Superstition Mountains. Study area drainage is characterized by washes that flow from the Superstition Mountains to the valley floor through fan shaped areas of alluvial deposits. Drainage is generally in the southwesterly direction, however, washes are not always clearly defined and flood planes are not easily delineated. Federal Emergency Management Agency (FEMA) designates Peralta Wash, Navajo Wash, and Queen Creek as a "Zone A" flood area. US 60 crosses the alluvial fans and multiple washes. The possible reroute of US 60 between MP 199 to MP 205 would also cross the alluvial fans requiring bridge and drainage structures.

Environmental Conditions

Numerous archeological sites have been recorded in the study area. Hazardous sites include the City of Apache Junction landfill, approximately two miles west of the study area and underground storage tanks along portions of US 60.

Undeveloped lands within the study area are pristine desert, vegetated primarily of Arizona Upland Sonoran Desert Scrub supporting habitats of a variety of smaller mammals, birds, and reptiles. Riparian communities within the study area play important roles in the feeding, nesting, resting, and traveling of wildlife species. However, the Arizona Game and Fish Department has stated that their records do not indicate the presence of any special status species or any designated or proposed critical habitats in the study area.

Current Roadway, Traffic, and Safety Conditions

Roadway Characteristics

US 60 Corridor is a 4-lane divided highway with limited access control. The study area primarily traverses lands administered by ASLD. US 60 is controlled by four signalized intersections within the unincorporated town of Gold Canyon. On the east end of the corridor a grade separated interchange exists on US 60 at SR 79, Florence Junction.

Traffic Characteristics

2004 Average Daily Traffic between Kings Ranch Road and Goldfield Road varied from 24,800 to 31,000 vehicles per day. The 2002 Average Daily Traffic west of SR 79 was approximately 14,000 vehicles per day. The corridor currently operates below capacity; however traffic volumes on US 60 increase considerably during events such as the Renaissance Festival.

Crashes

During a five-year period from August 2, 1999 to July 8, 2004, a total of 491 crashes occurred on US 60 between Milepost 199 and 212. Of this total, approximately 32 percent were intersection related, 38 percent were single vehicle accidents, and 50 percent were angle, turning, or read-end accidents. A total of six fatalities occurred. Approximately 58 percent of the accidents occurred between MP 199 and 201.

Future Conditions

A Pinal County Planning Model (PCPM) was developed to estimate 2030 traffic volumes in a larger modeling area comprised of a portion of Maricopa County and a large portion of northern Pinal County. The projected 2030 population within the modeling area is approximately 1.5 million people. Of this population, 0.4 million is within the Maricopa County portion of the modeling area and 1.1 million are within the Pinal County portion of the modeling area.

A 2030 roadway network was defined including improvements in the Maricopa Association of Governments (MAG) Regional Transportation Plan, future arterials and arterial improvements in the Apache Junction SATS, and an expanded arterial system in Pinal County. The projected 2030 Average Daily Traffic Volumes on existing US 60 between Goldfield Road and Kings Ranch Road was 78,000 vehicles per day and 41,000 vehicles per day west of SR 79. The existing roadway segments US 60 between Goldfield Road and SR 79, will be over capacity in year 2030, using the assumed 2030 population for the modeling area.

Corridor Needs Analysis

A new US 60 reroute is needed to meet 2030 projected travel demand within the study area. The reroute would generally parallel existing US 60 from the end of the Superstition Freeway to the Renaissance Festival Site. Upgrades to existing US 60 between the Renaissance Festival Site to SR 79 are needed to meet 2030 travel demand, including grade-separated interchanges. A fully developed arterial roadway system in the north-south and east-west direction is needed for the corridor to operate effectively. The Williams Gateway extension east of the North-South Corridor will need to be considered under build-out conditions as a freeway type facility. Provisions should be made to preserve the corridor for build-out conditions.

Feasibility Analysis

A planning level feasibility analysis was undertaken for the US 60 corridor with the following findings:

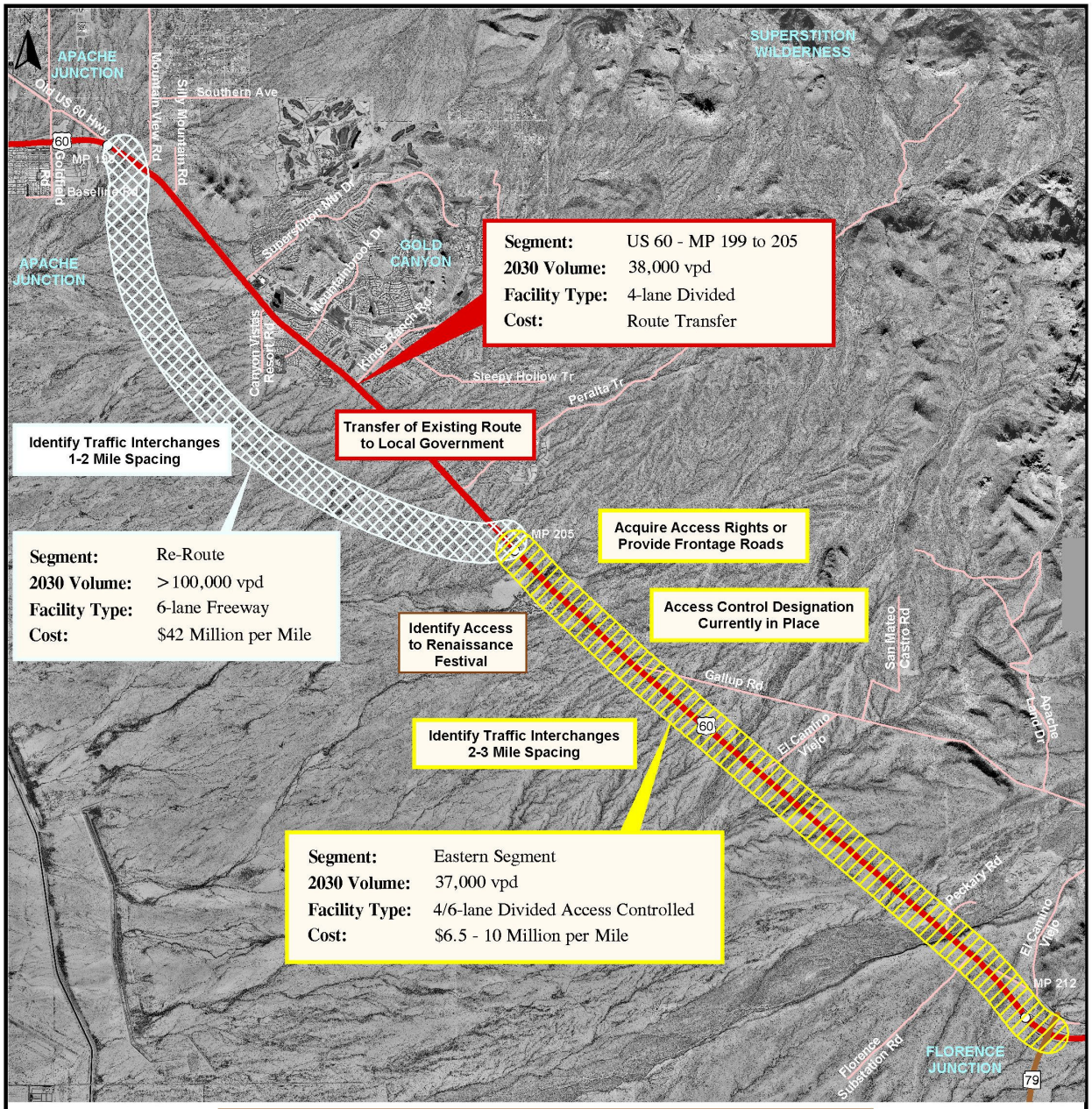
- **Engineering Feasibility:** No engineering or technical obstacles were identified at the planning level analysis that would prevent further corridor development.
- **Environmental Compliance:** An initial assessment and findings from previous studies do not indicate the existence of a fatal flaw with environmental compliance precluding moving forward with further development of the corridor.
- **Land Use:** Since the potential reroute would be located in undeveloped land, the opportunity exists to integrate the freeway concept with ongoing and future land use planning such as mixed-use nodal development concepts at interchange areas.
- **Multimodal considerations:** With an increase in population and activity the need to accommodate multimodal transportation needs within the corridor will increase. Multimodal considerations need to be incorporated into the design of the future US 60 facility.
- **Cost and Funding:** The cost of the reroute facility could reach more than $300 million and continuation of US 60 as access-controlled facility could range from $45 million to $70 million.
- **Public Support:** ADOT sought input on numerous occasions from stakeholders, jurisdictions, and agencies regarding their support for the corridor concept for US 60. The public as well as the local jurisdictions are in support of the US 60 reroute and the continuation of US 60 as access-controlled facility.

RECOMMENDED CORRIDOR CONCEPT

The recommended US 60 Corridor Concept includes a 6-lane US 60 freeway reroute generally paralleling existing US 60 from the end of the Superstition Freeway to just west of the Renaissance Festival Site. This segment would remain designated as US 60, a state highway, to preserve continuity of the state highway system. The freeway would be access controlled with access provided only at grade-separated interchanges spaced approximately one to two miles. The freeway connects back to the existing US 60 corridor as a 4- to 6-lane access-controlled multilane highway with access provided at grade-separated interchanges spaced approximately two to three miles apart. Figure 2 presents the US 60 Corridor Concept.

US 60 is currently designated an access controlled highway. ADOT needs to partner now with the State Lands Department, Pinal County, and developers to acquire access rights along the existing US 60 corridor from MP 205 to SR 79 and/or to implement frontage roads or a parallel street system. The establishment of access control and implementation of improvements along the US 60 corridor will require planning, policy, and funding actions that transcend the authority and resources of any single unit of government. Land use decisions need to be coordinated with the roadway development to achieve access management and access control.

FIGURE 2. US 60 CORRIDOR DEFINITION CONCEPT



A Design Concept Report (DCR) will need to be initiated to further define the alignment of the reroute and improvements along existing US 60 from MP 205 to MP 212. Several issues will need to be addressed in detail, most importantly the coordination with the local jurisdiction and particularly with the State Land Department. Environmental compliance as well as drainage issues will need to be dealt with in detail. New ROW will need to be acquired primarily for the reroute facility. The preservation efforts should include possible System-to-System interchanges at locations where high capacity facilities interconnect. In regard to implementation, the major task will be the identification of funding sources for the improvements.

In order to continue the study efforts along the US 60 Corridor, ADOT has reserved $2 million in funding for a Design Concept Report on US 60 from Baseline to Florence Junction for Fiscal Year 2006.

ORGANIZATION OF THIS DOCUMENT

The current socioeconomic and physical conditions within the study area are summarized in Chapter 2 and documented in detail *Working Paper 1: Existing and Future Conditions, June 8, 2005*. The third chapter presents current roadway and traffic characteristics which is followed by chapter 4 describing the future roadway needs, systemwide corridor needs analysis, and corridor concept. Chapter 5 provides an overview of the US 60 corridor needs analysis and corridor concept. The next chapter documents a planning level feasibility analysis for the US 60 corridor concept. Chapter 7 presents conclusions for the study including the final systemwide concept. Additional information is provided in the Appendix.

2. CURRENT SOCIOECONOMIC AND PHYSICAL CONDITIONS

This chapter reviews previous studies and plans, socioeconomic, and physical environment of the study area. The first section summarizes previous studies and plans, followed by a discussion of the socioeconomic environment. A third section presents demographic and environmental justice considerations, and concludes with a summary of the physical considerations of the Study area.

PERTINENT STUDIES AND PLANS

Numerous studies have been conducted in the recent past analyzing transportation and land use within the study area and its surroundings. The studies were reviewed and findings incorporated in the US 60 corridor definition study effort. Table 1 presents a summary of the previous studies and plans. Detailed information on the individual studies is documented in Working Paper 1.

SOCIOECONOMIC ENVIRONMENT

Land Ownership and Jurisdictional Boundaries

With the exception of the private development in the Gold Canyon area, and several other large privately owned parcels west of Gold Canyon, the land within the study area is primarily owned by the State and managed by the Arizona State Land Department, or is owned and managed by the federal Bureau of Land Management. The portion of the study area where a re-route is being studied begins within the limits of the City of Apache Junction, crosses BLM land, and continues past the unincorporated community of Gold Canyon. The remainder of the study area crosses ASLD land and a few privately held parcels. The entire study area lies within Pinal County. Utility easements parallel US 60 and several overhead power lines follow the route. A 230 kilovolt transmission line lies just north of the westbound lanes and other distribution power lines lay just south of the eastbound lanes. Figure 3 presents an overview of the land ownership and jurisdictional boundaries.

Land Use and Zoning

Figure 4 provides an overview of land use in the study area as designated in the ***Pinal County Comprehensive Plan***. The designations include the following: 1) Incorporated Area and Transitional; 2) Urban; 3) Natural Resource; 4) Development Sensitive, and 5) Commercial Activity Center areas. Land use designations in the City of Apache Junction study area includes 1) Medium and High Density Residential; 2) Business Park/Industrial; 3) Employment/Retail; and 4) and Public Institutional. Pinal County zoning classifications within the study area include general rural, low-density residential, and urban density. Zoning in the unincorporated community of Gold Canyon includes low-density residential and urban density.

TABLE 1. SUMMARY OF PERTINENT STUDIES AND PLANS

Title	Date	Summary
ADOT Transportation Studies		
State Transportation Board Policies	Rev 2003	Policies pertaining to the following areas; priority programs, establishing, altering or vacating highways, construction contracts, accelerated funding mechanisms, local government airport grants, and designating scenic or historic highways.
Statewide Bicycle Pedestrian Plan	2003	Developed to determined existing conditions for bicycle travel and identify preferred bicyclist routes on the State Highway System.
1994 State Transportation Plan	1994	Presented an updated 20-year plan for Arizona. This plan included all modes of transportation including state highways, railways, public transit, bicycles, and pedestrians. Addressed short-term (1 to 3 years), mid-term (3 to 5 years), and long-term (5 to 20 years) economic futures and impacts to the state transportation system.
2004 MoveAZ	2004	Provided strategic direction for the state transportation system.
ADOT Study Area Studies		
Design Concept Report, US 60 Florence Jct (MP 211.7) to Superior (MP 226.8)	May 2004	Does not directly impact the section of US 60 under study near the Gold Canyon area, but does demonstrate future regional importance.
US 60 DCR, AJ to Florence Junction, Draft Documents, BRW/ADOT	2003	Includes meeting notes from Aug. and Jan. 2001 and Jan. 2002. Discussed evaluation of alternatives, preliminary costs, habitat concerns, and annexation plans. This study is on hold.
Preliminary Geotechnical / Geological Assessment, US 60 Gold Canyon Bypass Alternative, AJ to Florence Jct.	Jan 2001	The study concluded with recommendations for possible excavation conditions, cut and fill slopes and potential conditions for pavement and foundations.
Noise Study Technical Report, US 60 – Apache Junction to Florence Junction	June 2000	The analysis showed that proposed improvements (non by-pass) would require noise mitigation, depending on location and type of facility.
US 60 MP 199.17 to MP 212.17, Initial Traffic Operational Analysis Report	Nov 2000	The report recommended either an alternative with one-way frontage roads or the By-pass alternative to best accommodate future traffic needs.
Draft Environmental Assessment, US 60 – Apache Jct. to Florence Jct.	Dec 1999	Several mitigation measures were proposed along the existing alignment; cultural resources mitigation, noise abatement, preventing noxious weeds, salvage of native plants, and creating a storm water pollution plan.
Draft Initial Design Concept Report, US 60 – Apache Jct. to Florence Jct.	Nov 1999	Recommended adding a traffic lane between MP 199.17 and 200.00, reconstructing with median and two interchanges between 200.00 and 203.4, and maintaining four-lanes between 203.4 and 212.17
US 60 Corridor Profile Study, Inventory of Existing Conditions and Analysis of Needs and Deficiencies	1998	Focused on four elements related to the US 60 Corridor from Apache Junction to Globe: identifying performance and environmental concerns, addressing travel issues, develop strategic goals, and helping to allocate scarce State resources.
Resolution of Establishment # 98-11-A-057, US 60 – Apache Jct. to Forest Boundary	Nov 1998	Recommends establishment of access control for US 60 from Apache Jct to MP 220. Outlines how to acquire and implement necessary control measures.

TABLE 1. SUMMARY OF PERTINENT STUDIES AND PLANS (CONTINUED)

Title	Date	Summary
Pinal County		
Superstition Freeway Extension – Project Assessment	March 2003	The project assessment discusses the by-pass alternative as well as improvements to the existing alignment.
Southern Pinal County Regional Transportation Study	April 2003	Conducted to determine transportation needs as the Southern Pinal County region develops, including; assessment of existing and future conditions, recommended improvements, and funding mechanisms.
Preliminary Assessment of Environmental Issues Associated with the US 60 Extension Project, Pinal County	May 2003	Issues with the Endangered Species Act would focus on the Cactus Ferruginous Pygmy-Owl within the proposed realignment study area, a number of archaeological sites were identified and cataloged, cited the need for an Environmental Assessment and proper permits.
Regional Arterial and Collector Street Plan (Hunt Highway and Gantzel Road Area)	June 2003	The plan focused primarily on section line roads at the one mile grid. This study did not extend to include US 60 and does not impact the study area.
Pinal County Comprehensive Plan	2001	Provides a general guide to transportation issues over the next twenty years. Identified expansion in Northern Pinal County, and specified the US 60 Corridor as being under study.
Superstition Valley Transportation Study	July 1999	Analyzed impacts of future development on an area of northern Pinal County known as Superstition Valley.
Apache Junction		
Small Area Transportation Study, City of Apache Junction	May 2004	Shows US 60 by-pass as a proposed freeway with connections to other proposed roadways. The US 60 by-pass will impact future development and roadway plans for Apache Junction.
Street Circulation and Access Study, Apache Junction	Feb 2003	Recommended improvements to local streets, north of the US 60 study area, no direct impacts on the US 60 study.
City of Apache Junction, General Plan	Nov 1999	Circulation plan map does not show a by-pass for US 60. However, the area south and west of US 60 is shown as a growth area for Apache Junction.
Apache Junction Transportation /Transit Study, Apache Junction	Sept 1988	Indicated connection between US 60 and the freeway system near Florence Junction. The plan does not directly impact the US 60 study area under current study.
Other Studies		
Southeast Maricopa / Northern Pinal County Area Transportation Study, MAG	Sept 2003	The study specifically identifies the US 60 Bypass as a new highway study area. The US 60 Bypass is identified in Group I (highest emphasis) for implementation within this study.
Superstition Area Land Plan, Superstition Area Land Trust	June 2002	The Study presents quantitative and qualitative recommendations including impact on developed areas, safety, and quality of life for a large area surrounding and north of US 60 between Apache Jct. and Florence Jct.
Central College Bond Feasibility Study, Demographic Analysis, Applied Economics	May 2004	This report provides long-term population projections for Pinal County to assess needs for the college. Estimates 1 million people and 136,000 dwelling units by 2025.

FIGURE 3. LAND OWNERSHIP

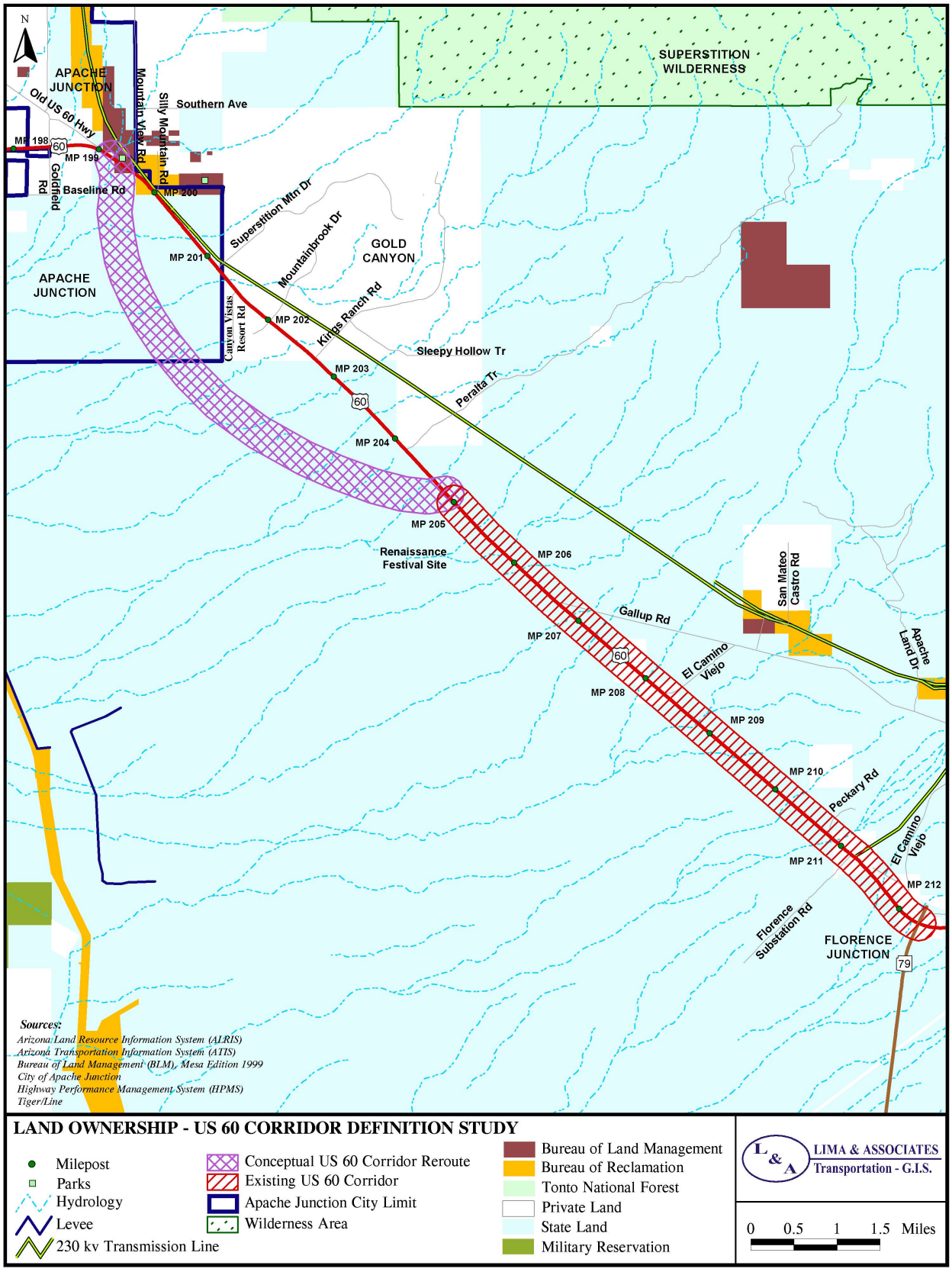
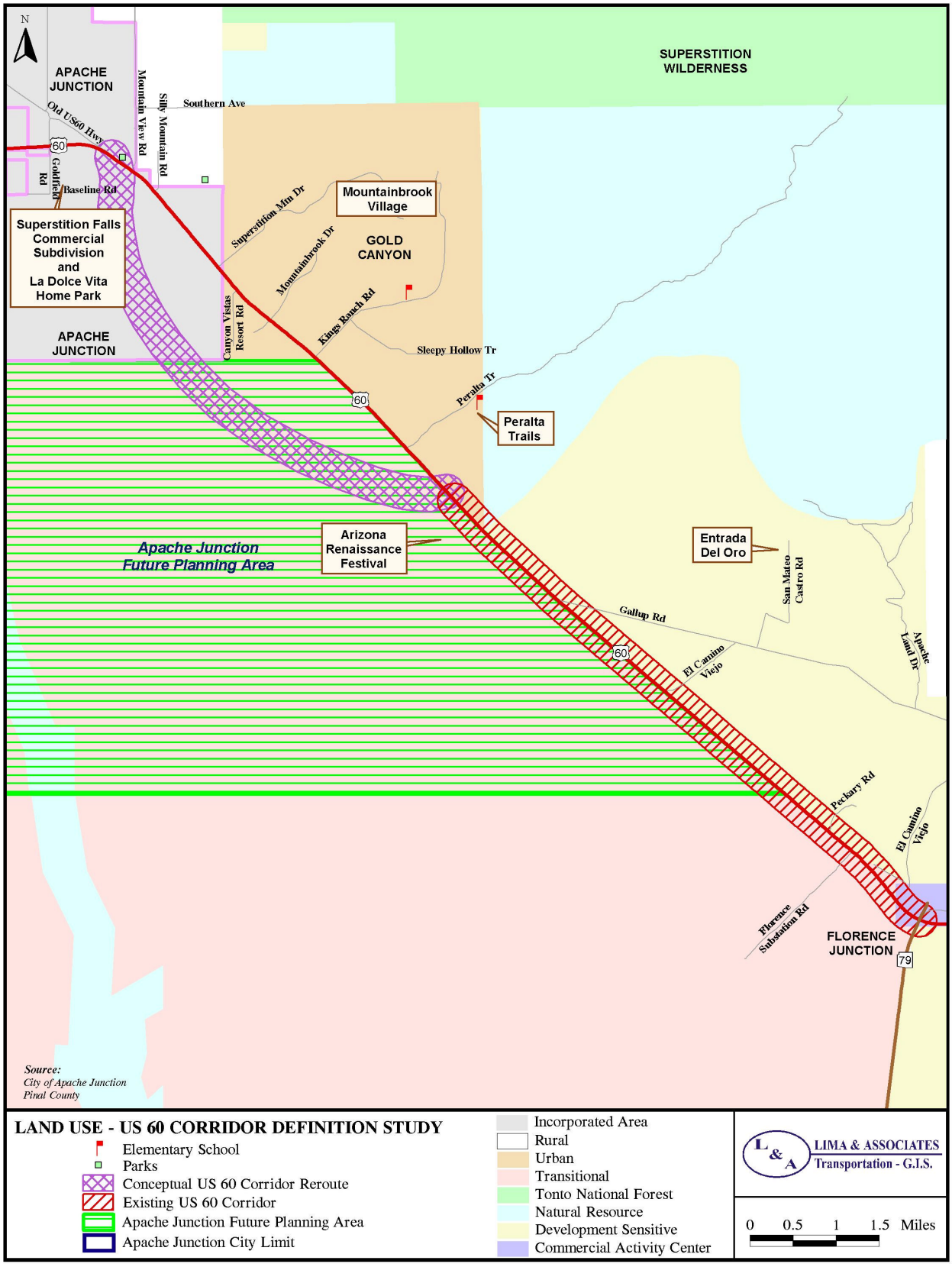


FIGURE 4. LAND USE



Existing land use within the study area is primarily undeveloped/vacant land with some commercial and residential land uses. Higher density residential land uses are found in developments such as Superstition Fall Commercial Subdivision and La Dolce Vita Home Park within the city limits of Apache Junction, and within the unincorporated community of Gold Canyon. Proposed residential developments include Peralta Trails Phases 1 and 2. Several large residential developments have been constructed in the recent past as shown in Table 2.

TABLE 2. ACTIVE OR PLANNED LAND DEVELOPMENT

	Development Name and Location	Construction Schedule	Existing Dwelling Units	Additional Dwelling Units
1	Entrada Del Oro, San Mateo Castro Rd	Active	0	1,088
2	Gold Canyon, Sleepy Hollow Trl & Kings Ranch Rd	Active	234	111
3	Gold Canyon East, Kings Ranch Rd & US 60	Active	123	268
4	Mountainbrook Village, Mountainbrook Dr & US 60	Built out	490	0
5	Peralta Trails, Peralta Trl & US 60	Active	361	650
6	Superstition Foothills, Superstition Mountain Dr	Active	675	531
7	Superstition Mountain, Superstition Mountain Dr	Active	94	321
8	Transitional Land, located East and West of US 60 between MP 203-204 on ASLD land	10-15 Years	0	5,760
9	Transitional Land, located East and West of US 60 between MP 200-201 on ASLD land	10-15 Years	0	2,100 per sq mi
10	Unnamed, Mountain View Rd	5-10 Years	0	12

Source: Central Arizona College Bond Feasibility Study Demographic Analysis, Applied Economics, May 2004

In addition, the following developments have been constructed: Kings Ranch, Mesa Del Oro, Hermosa Hills, Mountain Whisper, Fairway Views, The Casas, Golden Springs, and Hieroglyphic Trails. There are also several large RV/Mobile Home parks and an adult community: Canyon Vistas RV Resort (MP 201.3), Sandpoint RV Resort (MP 201.5), Gold Canyon RV Park (MP 201.9), Sand Tanks Mobile Home Park, and Montessa Adult Community.

Commercial developments include strip shopping centers, retail stores, gas stations, grocery and convenience stores, and a motel along existing US 60. In addition, several parks and golf courses are located adjacent to the roadway. The Arizona Renaissance Festival site is located east of Gold Canyon on the south side of US 60 under a thirty-year lease with the Arizona State Land Department. The Festival is held in February and March each year for eight straight weekends, including President's Day (Monday), on a site leased from the State Land Department near MP 205.3. This event attracts approximately 250,000 visitors annually, or an average of 14,706 visitors a day.

Major Institutional Sites

Two elementary schools are located in Gold Canyon and are within the jurisdiction of the Apache Junction Unified School District. Peralta Trail Elementary is located on Peralta Drive approximately one mile from US 60 and Gold Canyon Elementary is situated on Alameda Road, approximately one and one-half miles from US 60. Additional educational institutions including elementary, middle, and high schools, a Community College, and a 4-year University are located in the City of Apache Junction. In addition, a high school is planned to be built at the northwest corner of US 60 and Peralta Trail and the developer of Entrada Del Oro donated 28 acres of land to the Apache Junction Unified School District as the site for a future elementary school. Other planned sites include a fire station at the southeast corner of US 60 and Mountainbrook Drive and a small airport in the vicinity of Florence Junction.

Recreation & Tourism and other Economic Activities

US 60 functions as a primary recreational transportation study area for travel between the Phoenix Metropolitan Area, Florence Junction, Globe, Roosevelt Lake, and the White Mountains in northeastern Arizona. Annual events such as the Arizona Renaissance Festival, the International Traditions Golf Tournament held at the Superstition Mountain Golf Course, and the Lost Dutchman Marathon which begins on Peralta Trail, attract many visitors year round. Other popular trailheads reached from US 60 include those for Carney Springs and Lost Goldmine Trails.

Several ranchers control grazing lease rights issued by ASLD and BLM within the study area. Natural grazing land must have a minimum annual carrying capacity of 40 animal units per year to qualify as ranch property. Major area grazing operations include the Flake Ranch and Ellsworth Desert grazing lease areas southwest of US 60 and the Johnson Ranch grazing lease area northeast of the roadway. The Johnson Ranch operation covers about twenty-two sections of State Land.

DEMOGRAPHIC AND ENVIRONMENTAL JUSTICE CONSIDERATIONS

Population

Table 3 presents historical population data for the State of Arizona, Pinal County, City of Apache Junction, and Gold Canyon area. As shown in the table, the pace of growth between 1990 and 2000 in Pinal County and Apache Junction was significantly higher than for the State as a whole.

Figure 5 shows the total population distribution in the vicinity of the Study area. The most populous area is in the City of Apache Junction west of Tomahawk Road. Pockets of highly populated areas are located in the vicinity of the unincorporated Town of Gold Canyon. Unpopulated areas exist in the northern and southeastern portions of the Study area. Low concentrations of population are found in the southwest portion of the Study area and north of Florence Junction.

TABLE 3. CHANGES IN POPULATION

	Population				
	1990	2000	% Change 1990-2000	2004	% Change 2000-2004
Arizona	3,665,339	5,130,632	40.0%	5,832,150	13.7%
Pinal County	116,397	179,727	54.4%	218,285	21.5%
Apache Junction	18,092	31,814	75.8%	33,725	6.0%
Gold Canyon area	NA	6,015	NA	NA	NA

Source: Arizona Department of Economic Security (ADES), U.S. Census 2000, ADES Census 2004 Estimates

Title VI and Environmental Justice Considerations

This section presents information on specific population segments including minorities, age, sex, mobility-limited, and below poverty level. Title VI of the Civil Rights Act of 1964 and related statutes ensure that individuals are not discriminated against based on race, color, national origin, age, sex, or disability. Executive Order 12898 on Environmental Justice dictates that any programs, policies, or activities to be implemented are not to have disproportionately high adverse human health and environmental effects on minority populations. Thus, in relation to this study, transportation improvements should not adversely impact such groups disproportionately. In addition to assuring that these policies are adhered to, a variety of possible alternatives should be developed and considered in order to make sure all groups are fairly represented in the amount and type of transportation services provided. Figure 6 presents an overview of the demographic variables considered for Environmental Justice. An assessment of environmental justice variables is provided below:

Minority Population and Elderly Population*:* The percentage minority population in both Apache Junction and Gold Canyon are significantly lower than either the statewide or Pinal County. However, the percentage of population 65 or over is significantly higher in Apache Junction and Gold Canyon.

Gender: As indicated by Figure 6, the variance for the State of Arizona between the percentage of the population that is male and the percentage that is female is minimal. The variance for Pinal County shows the female population far smaller (6.72 percent) than the male population. The City of Apache Junction and Gold Canyon areas' variances show the female population slightly greater than the male population.

Mobility-Limited Population: the variation between the percentage of mobility-limited persons statewide, Pinal County, and Apache Junction is small. The higher percentage of mobility-limited persons in Apache Junction could be due to the higher percentage of persons 65 and older.

Below Poverty Level Population: The percentage of persons below poverty level in Pinal County is almost two percentage points over the statewide percentage. However, the percentage of persons below poverty level in Apache Junction is more than two percent less than the statewide percentage.

FIGURE 5. TOTAL POPULATION BY CENSUS BLOCK

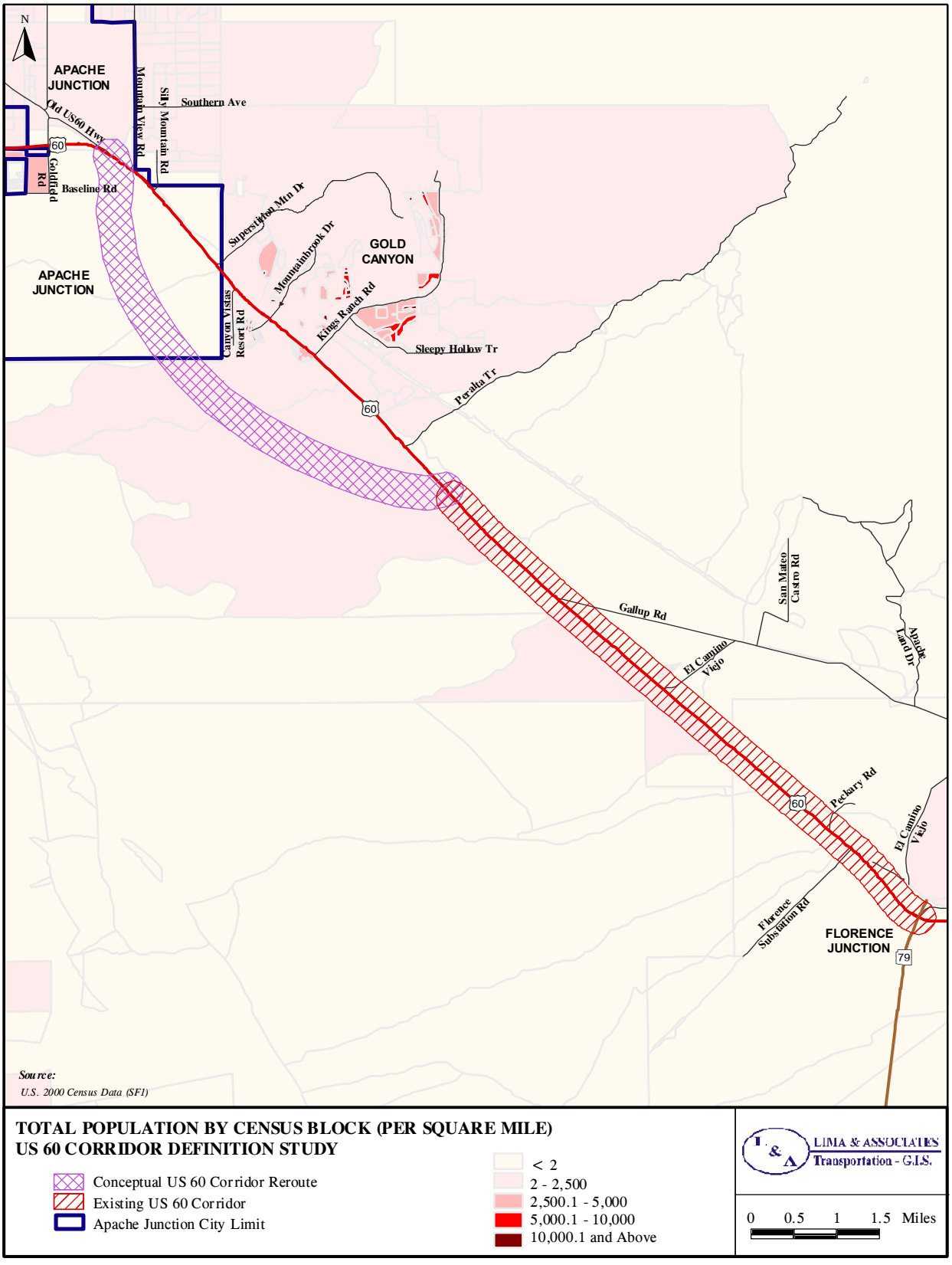
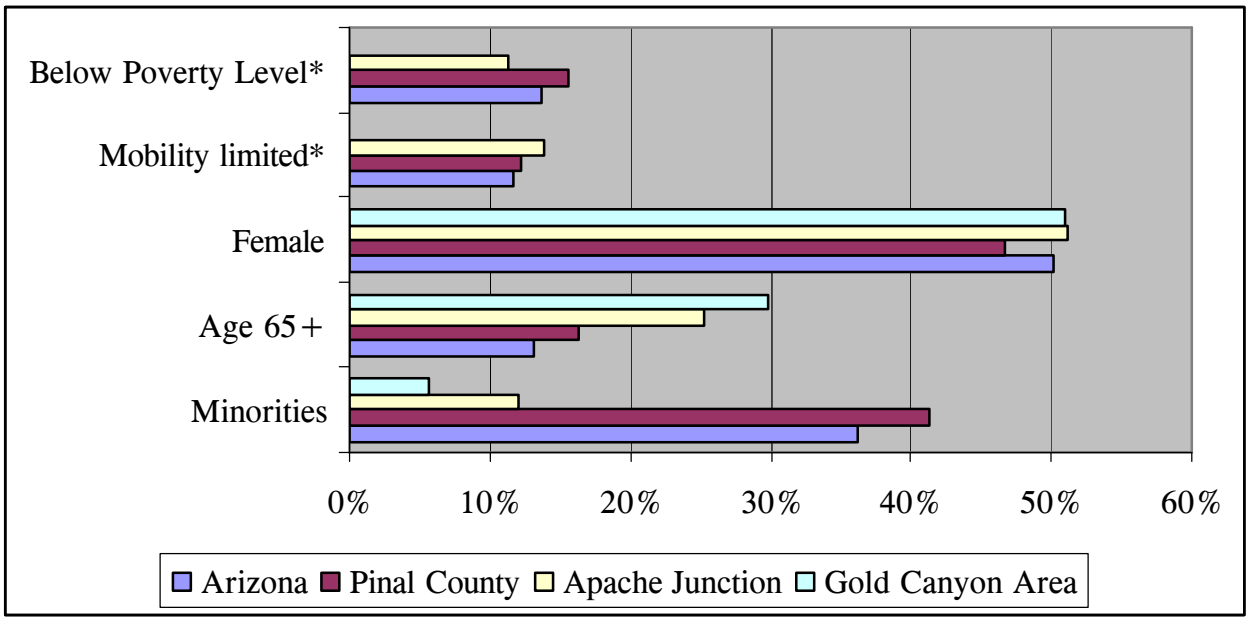


FIGURE 6. OVERVIEW OF ENVIRONMENTAL JUSTICE VARIABLES



Source: U.S. Census 2000
*No data available for Gold Canyon Area

PHYSICAL CHARACTERISTICS OF THE STUDY AREA

The following section provides an overview of the natural and physical conditions in the study area.

Geology

The Superstition Mountain Range is composed exclusively of volcanic rocks that erupted in mid-tertiary time, 35 to 15 million years ago, and emitted about 2,500 cubic miles of ash and lava. Afterwards, the roofs of partly emptied magma chambers collapsed, forming circular or oval calderas. Five overlapping calderas have been identified within the Superstition Mountain Range. The Superstition caldera was the largest, and was located north of the Study area. After the eruption and collapse of the Superstition caldera, a central up thrust of thick, dough-like lava created a resurgent dome. This dome now makes up most of the Superstition Mountains. Parts of the mountains are visible from US 60 southeast of Apache Junction. Thick layers of tuff stretching south from the resurgent dome now lie in a large syncline higher at its north end because of tilting during Basing and Range block faulting. Large alluvial fans below narrow canyons indicate the youthfulness of the range.

Topography and Soils Classification

The topography and soils classifications in the study area are presented in Figure 7. The area includes the alluvial fans southwest of the Superstition Mountains and can generally be described as a "Valley Topography" with slopes of no more than five percent. The elevation ranges from approximately 1,700 feet at the north end of the Study area near US 60 at MP-199.0 to approximately 1,900 feet at the southeast end of the study area near US 60 at MP-212.0, in generally flat terrain. The predominant soil classification is Moholl-Pinamt, known as a deep soil, nearly level to gently sloping soil formed in old mixed alluvium. A small area of the western edge of the study area lies on a soil classified as torrifluvents, which are recently deposited soils of alluvial plains. These soils make up a high proportion of irrigated soils in desert regions because they are normally located close to water, have gentle slopes, and deep, medium textured profiles. Moholl-Pinamt and torrifluvents soils are suitable for large scale development.

Environmental Conditions

The environmental conditions map shown in Figure 8 illustrates the natural vegetation, endangered species, hydrology, hazardous sites, and mining operations.

Natural Vegetation and Wildlife

The undeveloped lands within the study area are undisturbed desert. The natural vegetation of the majority of the study area is characteristic of the Arizona Upland Sonoran Desert Scrub. The dominant perennial species include foothills palo verde, creosote bush, and triangle leaf-bursage along with numerous cacti from the prickley-pear, cholla, and barrel cactus groups. Landscape elements receiving additional runoff water also support more mesic species including mesquite and ironwood. A small area of vegetation classified as Lower Colorado River Sonoran Desert Scrub covers a small area of the study area. The species include agave, assorted grasses, catclaw acacia, creosote bush, triangle leaf bursage, and white bursage. Species that are predominantly present within the larger drainage ways include blue palo verde, desert willow, ironwood, and western honey mesquite. The geographic size of riparian scrub communities is small within the study area. They are located near springs and along ephemeral streams. These riparian communities play important roles in the feeding, nesting, resting, and travel of wildlife species.

FIGURE 7. TOPOGRAPHY AND SOILS CLASSIFICATION

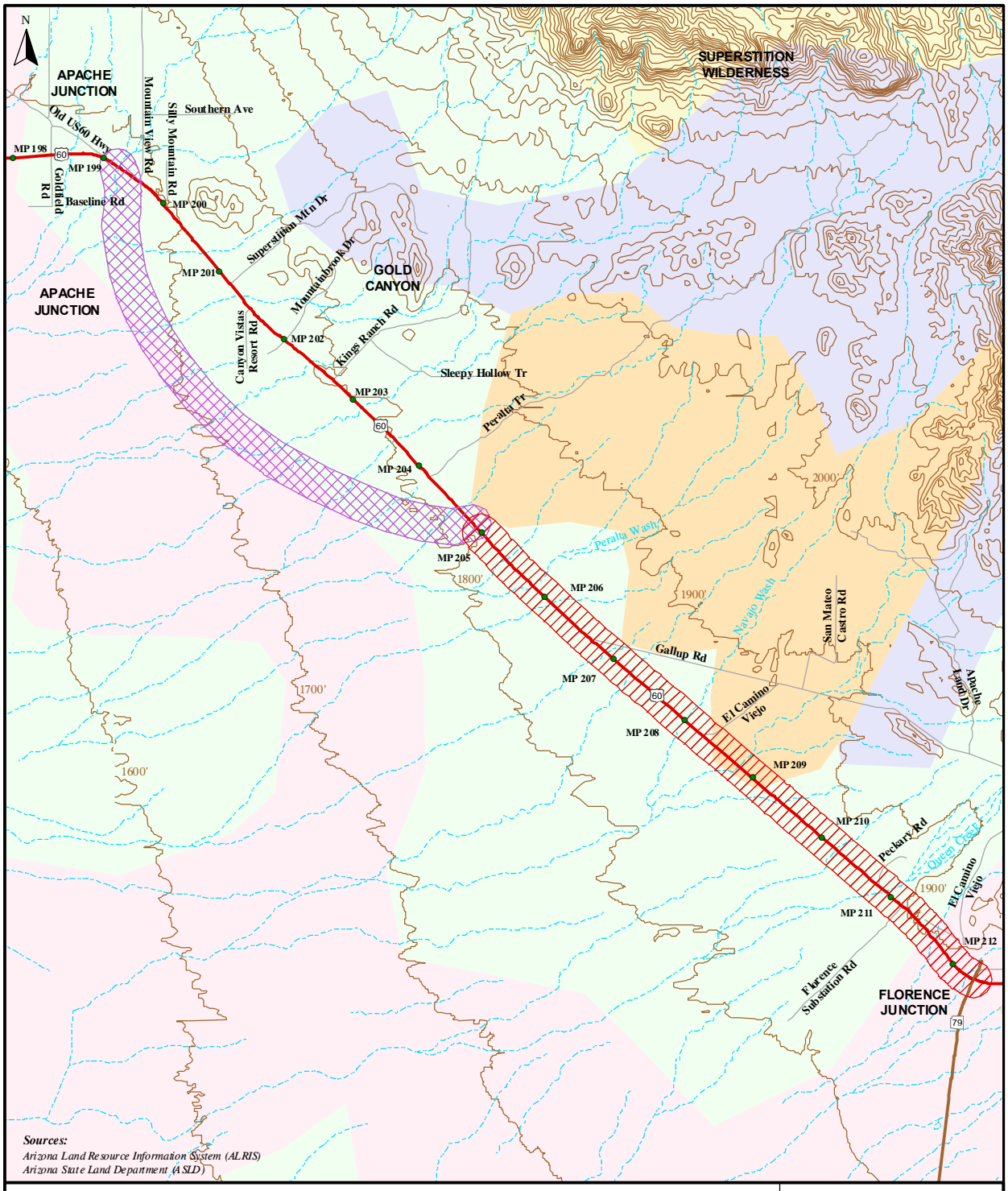
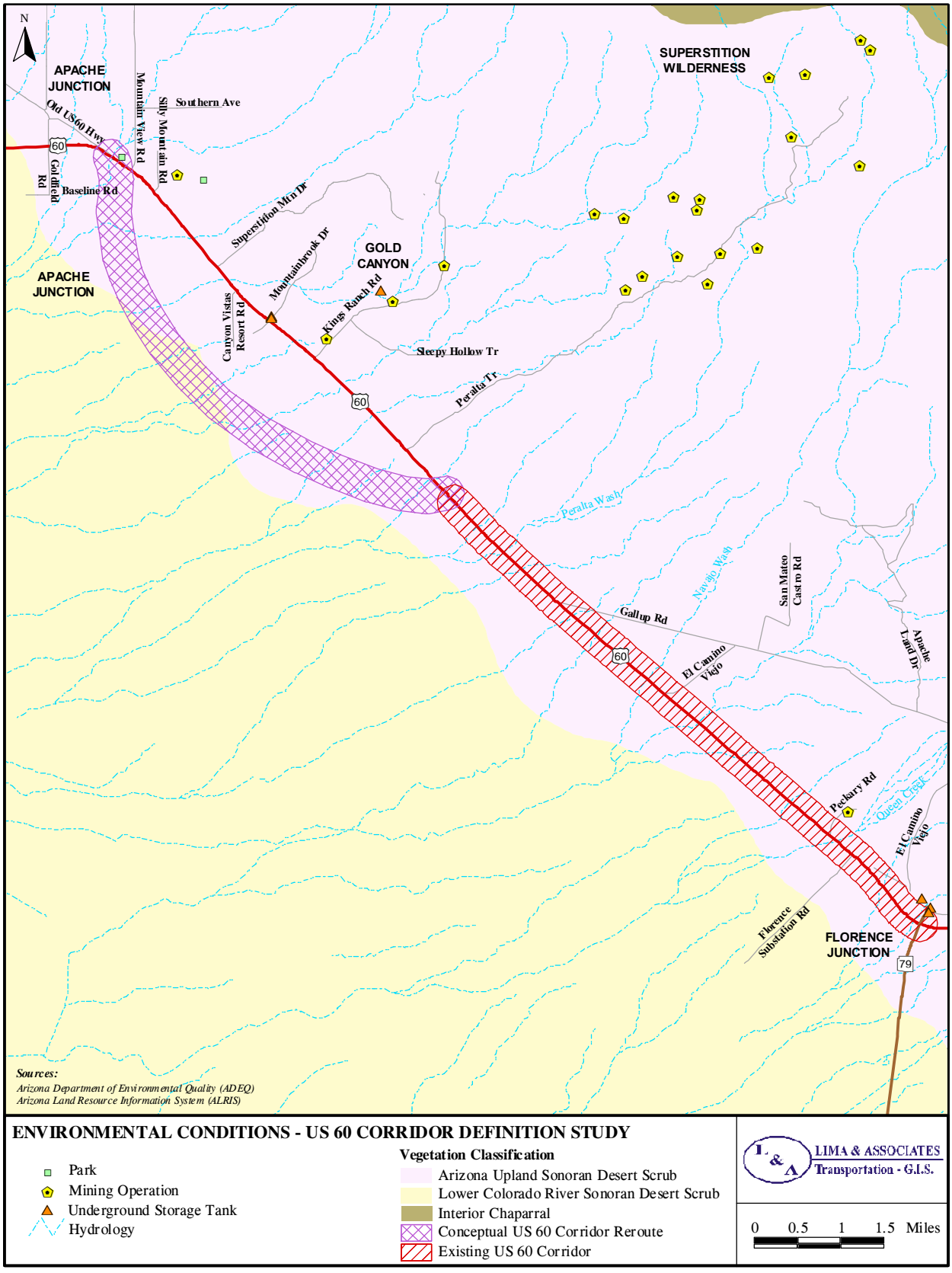


FIGURE 8. ENVIRONMENTAL CONDITIONS



Habitats within the Sonoran Desert Scrub vegetation support numerous smaller mammals, birds and reptiles. A variety of mammals including the black-tailed jack rabbit, coyote, javelina, pocket mouse, and round-tailed ground squirrel live in this area. Bird species include the cactus wren, mourning dove, and Gambels' quail. Reptiles such as snakes and lizards are also present in this area. Occurrences of black hawks and desert bighorn sheep have been documented in the study area.

Threatened, Endangered and Sensitive Species

Previous studies have stated that the Cactus Ferruginous Pigmy-Owl (Glaucidium brasilianum cactorum) was listed as an endangered species by the U.S. Fish and Wildlife Service in 1997. The critical habitat of this federally endangered Pigmy-Owl was designated in 1999 in Pinal County, located in the north and east portion of the study area. The Arizona Game and Fish Department, however, stated in a letter dated March 4, 2005, that the Heritage Data Management System's current records, which were updated in 2002, do not indicate the presence of any special status species in the vicinity of the study area. In addition, there is no designated or proposed critical habitat. The Department's letter is included in Appendix A.

A representative from the Department was contacted to clarify the status of the federally endangered Pigmy-Owl. The representative reported that the Cactus Ferruginous Pigmy-Owl has not been present in the vicinity of the study area for the last 50 years, and that this specie was removed from the database in 2002. In addition, the representative added that there is the potential habitat of four sensitive species in the study area including Western Yellow-billed Cuckoo, American Peregrine Falcon, Pima Indian Mallow, and Sonoran Desert Tortoise.

Archeological Sites

Previous surveys conducted for the potential US 60 reroute indicate that 26 recorded archaeological sites were located within a one-mile radius of the reroute alignment. Of those, a total of nine archeological sites are located within the project area. The most likely areas of potential archaeological sites are in areas within the floodplains and washes.

Drainage and Hydrology

The drainage within the Study area is characterized by washes that drain out of the Superstition. Mountains into the valley floor through fan shaped areas of alluvial deposits. While the direction of drainage is generally southwesterly, the washes within the alluvial fans are not always clearly defined and floodplains are not easily delineated. Several of these drainages are considered areas of potential flood hazard by the Federal Emergency Management Agency (FEMA). FEMA designates Peralta Wash, Navajo Wash, and Queen Creek as a "Zone A" flood area, where flooding has a one percent change of occurring in any given year. The Central Arizona Project (CAP) Canal runs in a north-south direction approximately three miles west of US 60. A levee is located along the east edge of the CAP canal.

Hazardous Sites

The City of Apache Junction active landfill is located on Tomahawk Road approximately two miles west of the study area. Underground storage tanks are present along US 60 near Mountainbrook Drive in the unincorporated town of Gold Canyon, and on US 60 around MP 212.0 in the Florence Junction area.

Mining Operations

Mining operations exist in the vicinity of the Study area. Several mining operations are located along Kings Ranch Road in the unincorporated town of Gold Canyon. A mining operation is present on Peckary Road near US 60 at MP 208.8.

3. CURRENT ROADWAY AND TRAFFIC CHARACTERISTICS

The current roadway and traffic characteristics of US 60 within the study area, are presented in this chapter. An overview of the current roadway characteristics, conditions, traffic characteristics, crash analysis, and level of service follows.

CURRENT ROADWAY CHARACTERISTICS

US 60 is a major arterial highway carrying interstate, regional, and local traffic. The highway provides local access to the residents and business in Gold Canyon as well as east-west through traffic. US 60 also provides direct access to the Renaissance Festival site on the south side of the highway. Just east of Goldfield Road, US 60 makes a transition from a freeway facility to a four-lane divided highway. The terrain along US 60 varies from flat terrain at the end of the Superstition Freeway to rolling terrain in the vicinity of Florence Junction. The existing roadway is a four-lane divided highway with 12 foot travel lanes within an access controlled 300 foot right-of-way. A wide median separates the east and west bound travel lanes generally by a distance of 100 feet. Four at-grade signalized intersections are located in Gold Canyon between Mountain View Road and Kings Ranch Road.

Speed Limits

Speed limit data was collected during a field view and is summarized in Table 4. The posted speed limit is 55 miles per hour (mph) from Goldfield Road (MP 198.4) to Kings Ranch Rd (MP 202.7). The speed limit increases to 65 mph south of Kings Ranch Road.

TABLE 4. SPEED LIMIT

Milepost (Approximate)	Street Name	Speed Limit (mph)
198.42 to 201.35	Goldfield Road to Superstition Mountain Drive	55
201.35 to 201.85	Superstition Mountain Drive to Mountain Brook Drive	55
201.85 to 202.70	Mountain Brook Drive to Kings Ranch Road	55
202.70 to 212.23	Kings Ranch Road to Florence Junction	65

Source: Lima & Associates Field Review

Utilities

As shown in the 1999 draft environmental assessment of US 60 the existing utilities in the vicinity of the study area include:

- Arizona Water Company, Water line
- Salt River Project (SRP) Electric, Overhead and underground electric

- US West, Overhead and underground telephone
- Gold Canyon LLC, Underground sewer
- Silver Springs Cable, Overhead cable television (on SRP poles)
- Southwest Gas, Natural gas main
- Lyle Anderson Companies, Central Arizona Project (CAP) water line
- Superstition Mountain LLC, CAP water line
- Realty Dealers Ltd., Water line
- TRIX Cable, Overhead cable television (on SRP poles)

Access and Traffic Controls

An inventory of driveways, intersections, and crossovers on US 60 was conducted based on a field view and use of aerial photographs. Four traffic signals are located along the existing highway between Mountain View Road and Kings Ranch Road. Eight stop signs regulate driveway access points, including three on the eastbound and five on the westbound. One yield sign is located on Peralta Trail to enter westbound on US 60. A number of crossovers are located between MP 199.0 and MP 212.0, some of them are less than one-half mile apart. The specific location of the access points are listed in Table B-1 in the Appendix B.

State Transportation Board Access Control Resolution

The Arizona State Transportation Board adopted a resolution on November 20, 1998, designated US 60 as an access-controlled highway. The resolution established access control on US 60 from the terminus of the Superstition Freeway in Apache Junction to the Tonto National Boundary and authorized the Director of ADOT to acquire right-of-way for access control. This study will examine the need to implement access control along existing US 60 and the procedures for implementing access control.

PAVEMENT CONDITIONS

2003 Pavement Condition

The pavement condition data for US 60 was obtained from the Arizona Pavement Management System (PMS). The PMS rating system for highways is presented in Table 5. The lowest pavement rating represents the best conditions. A rating above fifteen indicates that the roadway may require rehabilitation. Higher ratings indicate worse pavement conditions. Pavement rehabilitation includes minor resurfacing, mill and replacement, or complete reconstruction of the pavement. Further evaluation by ADOT is required to determine the condition of the pavement and strategy for rehabilitation the pavement.

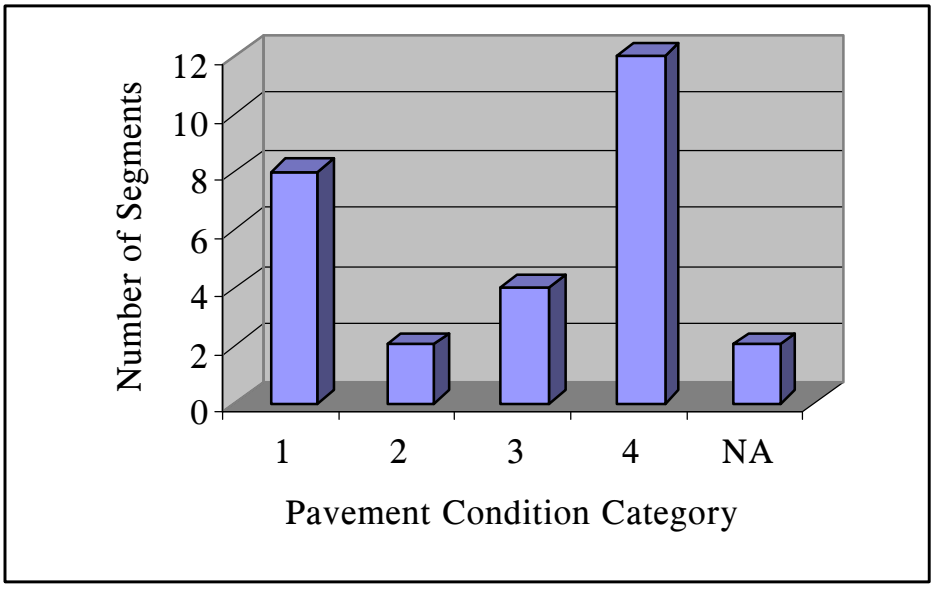
TABLE 5. ARIZONA PAVEMENT MANAGEMENT SYSTEM RATING SYSTEM

Pavement Rates	Category
0 - 15.0	1
15.1 – 20.0	2
20.1 – 25.0	3
Above 25.0	4

Source: ADOT Pavement Management Section

Pavement conditions are summarized in Figure 9 with 12 segments falling in category 4 and 8 segments being category 1. The highest pavement ratings for the eastbound direction of US 60 are located between MP 201.0 and Mountainbrook Drive at MP 202.0, and between MP 203.0 and MP 208.0. The highest pavement ratings for the westbound direction of US 60 are south of Silly Mountain Road at MP 199.0 until MP 208.0. Information on pavement condition by segment is provided in Table B-2 in the Appendix B.

FIGURE 9. SUMMARY OF PAVEMENT CONDITIONS



Programmed Projects

Currently, ADOT's Five Year Transportation Facilities Construction Program 2005-2009 does not specify any particular construction projects within the study area. The project closest to the immediate vicinity of the study area begins at Florence Junction (MP 212.17) and continues for six miles eastward. The project is to reconstruct and widen the roadway as a four lane divided highway at a cost of $37,000,000. The work is programmed for fiscal year 2006. The Arizona State Transportation Improvement Program 2005-2009 lists a Pinal County design project on Mountain View Road in the vicinity of the study area.

CURRENT TRAFFIC CONDITIONS

The operation of a street or highway is described by level of service (LOS), a qualitative indication of operations based on performance factors such as speed, travel time, maneuverability, and delay. The level of service of a facility is designated as a letter, A to F, with LOS A representing the best operating conditions (generally uninterrupted conditions) and LOS F representing the worst (congested conditions). Generally, a level of service in the range of LOS C to D is desirable for urban conditions and LOS B to C is desirable for rural conditions. The current LOS on roadway segments of US 60 from Goldfield Road to SR 79 was estimated using methods in the *Highway Capacity Software (HCS)* based on *2000 Highway Capacity Methods (HCM)*. Figure 10 presents US 60 existing traffic conditions.

Traffic Volumes and Analysis Parameters

Traffic volume counts were taken April-May 2004 by the Arizona Department of Transportation (ADOT) Data Team. The actual traffic counts were adjusted by Lima & Associates using ADOT seasonal and day-of-the-week adjustment factors. Table 6 presents the Average Annual Daily Traffic (AADT) for the segments between Goldfield Road and SR 79, Florence Junction.

TABLE 6. US 60 AVERAGE ANNUAL DAILY TRAFFIC

Segment	Total Daily Annual Average Traffic (Vehicles per Day)
Goldfield Rd. to Gold Canyon Rd.	31,600
Gold Canyon Rd. to Mountain Brook Dr.	28,000
Mountain Brook Dr. to Kings Ranch Rd.	24,800
Kings Ranch Rd. to SR 79, Florence Jct.	14,000

Source: 2004 Traffic Counts Obtained from ADOT's Data Team and adjusted to Average Annual Traffic Volumes by Lima & Associates

Peak-hour traffic volumes were estimated based on a truck percentage (T) of 17 percent and a design-hour factor (K) of 9 percent, obtained from the Arizona State Highway System KDT tables. A directional factor (D) was calculated for each segment based on the collected traffic counts.

Corridor Segments

LOS was analyzed for three roadway segments displayed in Table 7. The table also presents the roadway and traffic conditions for each segment. Each of the segments is described below.

FIGURE 10. EXISTING TRAFFIC CONDITIONS

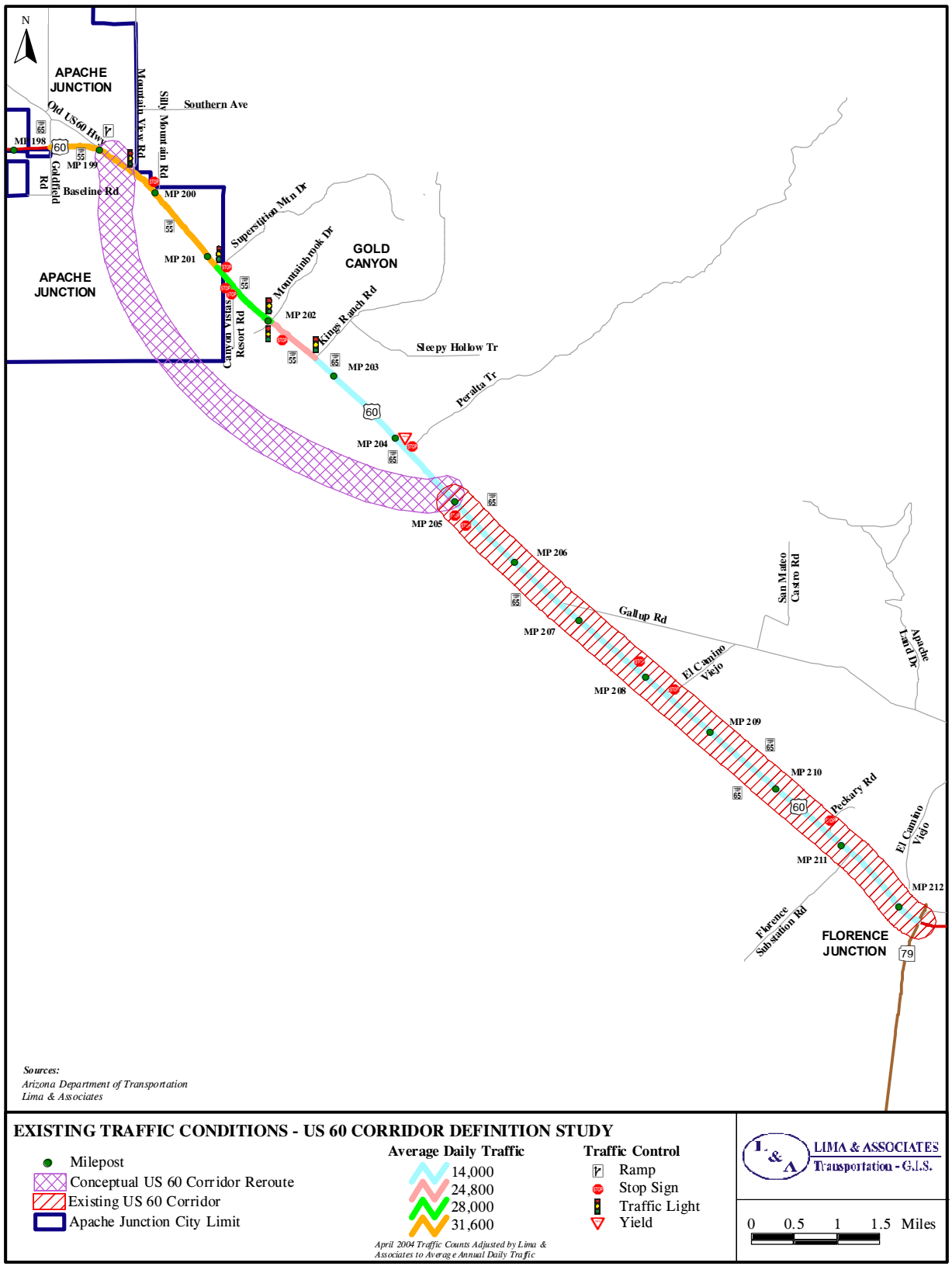


TABLE 7. SEGMENT CHARACTERISTICS

Segment	Seg. Length	Access Density	Parking	Sep. Left Turn	Signals/ Mile	Speed Limit	Ped. Activity
Goldfield Rd. to Superstition Mtn. Dr.	2.93 Miles	Very Low	No	Yes	1	55 mph	None
Superstition Mtn. Dr. to Kings Ranch Rd.	1.35 Miles	Low	No	Yes	2	55 mph	None
Kings Ranch Rd. to SR 79, Florence Jct.	9.53 Miles	Low	No	Yes	0	65 mph	None

Source: Lima & Associates

Goldfield Road to Kings Ranch Road

Just east of Goldfield Road, US 60 makes a transition from a freeway facility to a four-lane divided highway with four at-grade intersections located between Mountain View Road and Kings Ranch Road. The four signalized intersections are located at Mountain View Road, Superstition Mountain Drive, Mountain Brook Drive, and Kings Ranch Road, with a spacing of one to two miles. The intersection approaches include two through-lanes and left-turn lanes. The posted speed limit between Goldfield Road and Kings Ranch Road is 55 mph.

Kings Ranch Road to SR 79

US 60 between Kings Ranch Road and SR 79 is a four-lane rural divided highway controlled by stop signs on the cross streets. The posted speed limit is 65 mph. Current adjacent development is very low density, predominantly on the north side. The Renaissance Fair Site is located on the Southside of US 60 just east of Milepost 205.

Level of Service Analysis

The section of US 60 between Goldfield Road and Kings Ranch Road currently operates as a high speed expressway or principal arterial with signalized intersections. Therefore, the roadway was analyzed as a Class I Urban Street with the methods described in the *Urban Streets Chapter* of the *Highway Capacity Manual*. High speed principal arterials have the following characteristics: very low access density, no parking, separate left-turn lanes, no pedestrian activity, low roadside development, signal density that ranges from 0.5 to 2 signals per mile, and speed limit between 45 and 55 mile per hour. The criterion for estimating LOS for an urban street is average travel speed on the roadway segment.

US 60 from Kings Ranch Road to SR 79, Florence Junction was evaluated as a four-lane multilane highway using the methods in *Multilane Highways Chapter* of the *HCM*. Multilane highways typically have posted speed limits ranging between 40 to 55 miles per hour, a total

of four- or six-lanes, and traffic volumes typically ranging between 15,000 to 40,000 vehicles per day. Multilane highways can be divided, undivided, or have two-way left-turns, and have at-grade intersections. This roadway segment does not have traffic signals, bus stops, on-street parking, or pedestrian activity. The primary criterion for estimating LOS for multilane highways is traffic density and number of vehicles per mile per lane.

Table 8 displays the levels of services for segments between Goldfield Road and SR 79.

TABLE 8. US 60 LEVEL OF SERVICE AVERAGE DAY

Segment	Analysis Type	Average Travel Speed	DDHV Per Lane*	LOS
Goldfield Rd. to Superstition Mountain Dr.	Urban Street	43.3 mph	796 vphpl	A
Superstition Mountain Dr. to Kings Ranch Rd.	Urban Street	29.5 mph	606 vhhpl	C
Kings Ranch Rd. to SR 79, Florence Jct.	Multilane Highway	N/A	320 vphpl	A

Source: Lima & Associates; DDHV – Directional design hourly volume per lane; vphpl – vehicle per hour per lane

CRASH ANALYSIS

Overview

Crash data was provided by the Arizona Location Identification Surveillance System (ALISS) for US 60 for a five-year period from August 2, 1999 to July 8, 2004. A total of 491 crashes occurred between MP 199.0 and MP 212.0 in the analysis period, as summarized in Table 9. Approximately 32 percent of the crashes on US 60 were intersection-related while crash locations were unevenly distributed between the highway's westbound (46.11 percent) and eastbound lanes (53.89 percent).

TABLE 9. RELATIONSHIP OF US 60 INTERSECTION RELATED CRASHES TO TOTAL CRASHES (MP 199 to MP 212)

Intersection Related Crashes	No. of Crashes	Percent of Total
Intersection Related	157	31.98
Non-Intersection Related	334	68.02
Westbound	*154*	*46.11*
Eastbound	*180*	*53.89*
Total	**491**	**100.00**

Source: ADOT ALISS, August 2, 1999 to July 8, 2004

Crash Type

The highest number of crashes (38.09 percent) were single vehicle collisions, followed by rear-end collisions (37.27 percent), angle (12.02 percent), sideswipe (8.56 percent), and other crashes (2.44 percent). The remaining 1.62 percent includes left turn, head-on, backing, u-turn, and non-contact crashed.

Injury Severity

Figure 11 lists the severity of injuries resulting from the crashes. The majority of the crashes, or 56.42 percent, resulted in no injuries, or injuries that were not reported. Six crashes, 1.22 percent of the total, resulted in fatalities, and another 31 crashes, or 6.31 percent of the total, led to incapacitating injuries. Possible and non-incapacitating injury crashes account for another 36.05 percent of the total. Three of the six fatalities occurred on the northwest-bound lanes of the highway at mileposts 199.9, 210.6, and 210.9. One fatality occurred at milepost 204.2 at the Peralta Trail intersection. The last two fatalities took place at milepost 212.23 at the SR 79 intersection, Florence Junction.

Crash Rates

Table 10 summarizes the average crash rates for the 5-year period by roadway segments along US 60. The analysis is based on traffic volumes provided by ADOT and adjusted by Lima & Associates. A three percent-per-annum reduction was applied to year 2004 volumes to obtain estimated volumes for 1999, 2000, 2001, 2002, and 2003. Figure 12 illustrates the average crash rates for US 60 for each year of the 5-year period. The roadway section between mileposts 202.71 and 212.23 had the highest crash rate, 1.25 crashes per million vehicle miles traveled (MVMT). The section between mileposts 201.86 and 202.70 had a crash rate of 1.15 MVMT and the section between mileposts 198.42 and 201.35 had a crash rate of 1.03 MVMT.

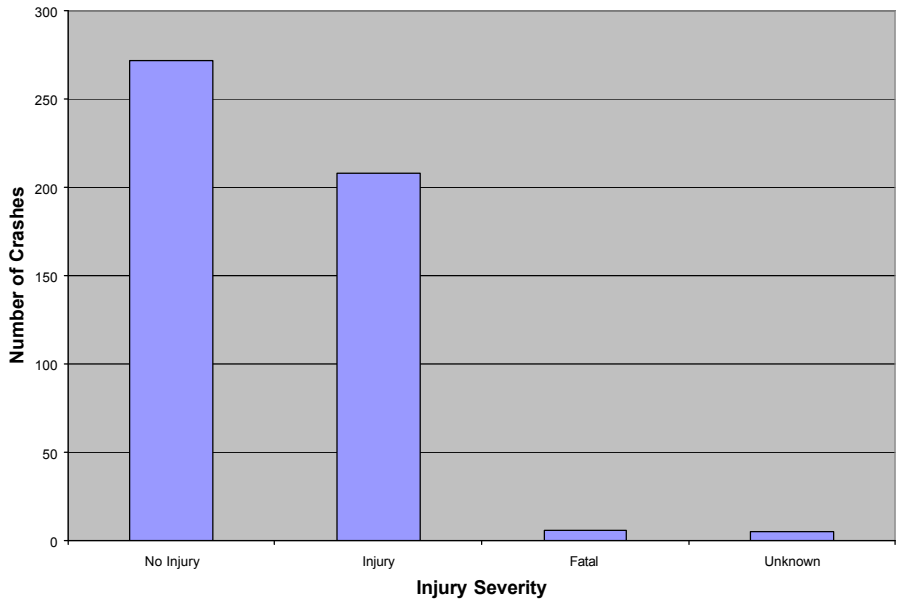
TABLE 10. US 60 CRASH RATES

Beginning Milepost	Ending Milepost	Length (miles)	Total Crashes	Traffic Volume	Crash Rate
198.42	201.35	2.93	164	29,789	1.03
201.36	201.85	0.49	1	26,404	0.04
201.86	202.70	0.84	41	23,343	1.15
202.71	212.23	9.52	285	13,152	1.25

Source: Lima & Associates

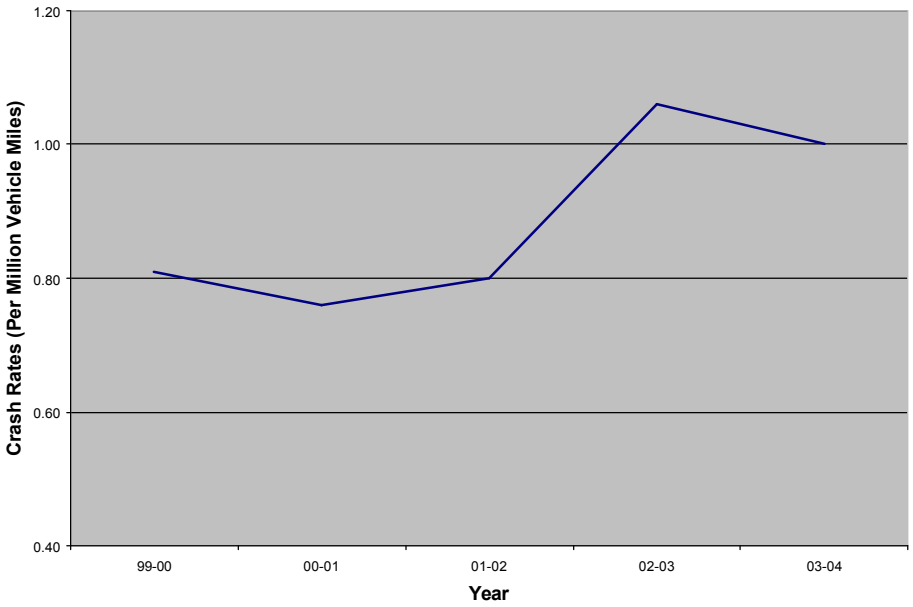
Notes: Crash rate is the number of crashes per million vehicle miles traveled
Assumed 3% reduction per year from year 2004 to obtain volumes for 1999, 2000, 2001, 2002, and 2003

FIGURE 11. US 60 CRASH INJURY SEVERITY



Source: ADOT ALISS, August 2, 1999 to July 8, 2004

FIGURE 12. AVERAGE CRASH RATES BY YEAR US 60 (MP 198.42 To MP 202.71)



Source: Lima & Associates computed rates based on ADOT ALISS, August 2, 1999 to July 8, 2004

SUMMARY OF CRASH ANALYSIS

The crash analysis indicated that 491 crashes occurred over a 5-year period from August 2, 1999 to July 8, 2004. Of the total crashes, approximately 32 percent of the total crashes were intersection related. About 42 percent of the total crashes involved injuries. The crash rates ranged from almost zero to 1.25 crashes per million vehicle miles traveled for four roadway segments. The average crash rate from MP 198.42 to 202.71 has been relatively stable over the five-year period varying from 0.81 in the 1999 to 2000 period to 1.06 in the 2002 to 2003 period.

The US 60 crash rates were compared to rates on US 95 in the vicinity of Lake Havasu City. For a period between January 1, 1999 and December 31, 2001, the crash rate on SR 95 south of Lake Havasu City was 1.26 crashes per million vehicle miles traveled and 0.86 crashes per million vehicle miles traveled north of Chenoweth Drive in the north side of the City. Within the Lake Havasu City, crashes rates varied from 1.04 to 8.73 crashes per million vehicle miles traveled.

4. FUTURE ROADWAY NEEDS AND SYSTEMWIDE CORRIDOR NEEDS ANALYSIS AND CORRIDOR CONCEPT

This chapter first introduces future roadway needs followed by a section on the systemwide corridor needs analysis and corridor concept.

US 60 ROADWAY NEEDS ANALYSIS

The following section discusses the evaluation of 2030 roadway needs in the US 60 study area. Figure 13 presents the process for determining roadway needs. Roadway needs were analyzed within the context of a larger area for the three ADOT Study area Definition Studies, referred to as the model area. The model area, illustrated in Figure 14, encompasses portions of southeastern Maricopa County and northern Pinal County. A study area planning model was developed for estimating the 2030 travel demand as based on the projected 2030 socioeconomic data and a 2030 base roadway network. The 2030 daily traffic volumes were then compared to the capacity of the roads in the base network to identify roadway capacity needs. The Planning Model is documented in a paper entitled *Pinal County Planning Model: Model Documentation*, May 11, 2005.

FIGURE 13. PROCESS TO ESTIMATE ROADWAY NEEDS

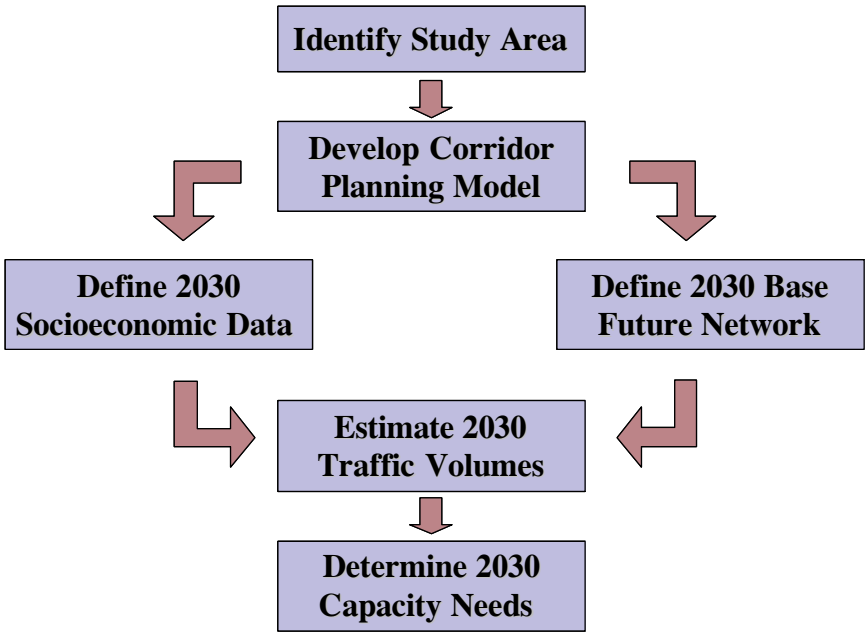
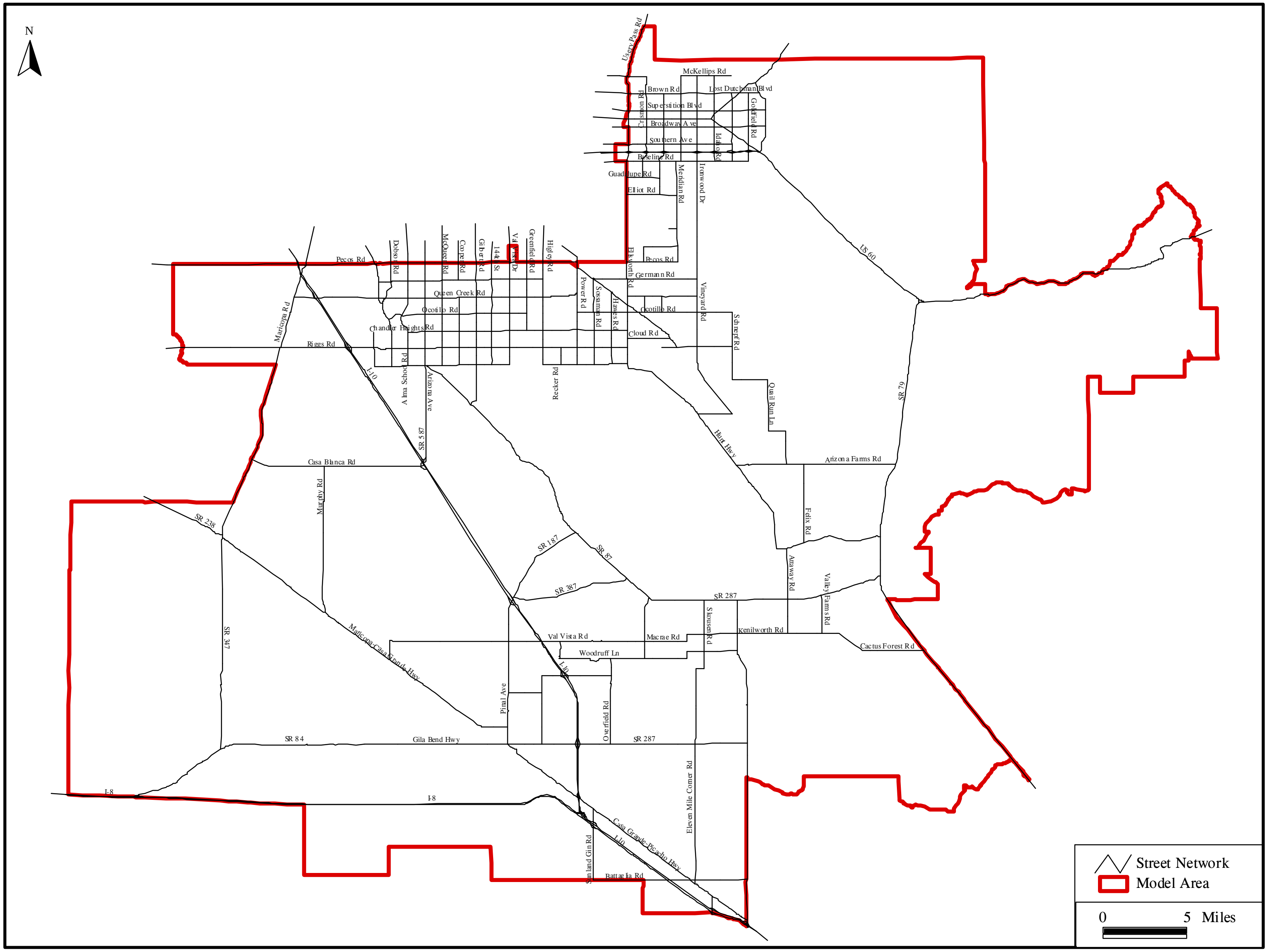


FIGURE 14. STUDY AREA DEFINITION STUDY MODEL AREA



DEVELOPMENT OF FUTURE TRAFFIC CONDITIONS

Development of 2030 Socioeconomic Data

Cambridge Systematics (CS) led the development of the 2030 Socioeconomic Data in coordination with the study teams for the US 60 and Pinal County Study area Definition Studies. The methodology and 2030 socioeconomic data are documented in a draft report *Pinal County Planning Model – Socioeconomic Estimates and Forecasts,* May 2005. The ADOT Study area Definition Study Teams as well as ADOT staff collaborated on the delineation of socioeconomic analysis zones (SAZs) within the study area (see Figure 15).

The 2030 socioeconomic data was developed for each SAZ including dwelling units, population, and employment categories for office, government, general, retail, and other. Table 11 summarizes the 2030 socioeconomic data for the model area and Figure 16 illustrates the 2030 population density allocation among the SAZs within the model area.

TABLE 11. 2030 SOCIOECONOMIC DATA
STUDY AREA DEFINITION STUDIES – MODEL AREA

Population	
Maricopa County Portion	414,000
Pinal County Portion	1,073,000
Entire Model Area	1,487,000
Dwelling Units	624,711
Employment	
Retail	101,878
Office	109,792
General	168,871
Government	67,906
Other	71,330
Total Employment	519,777
Population/Dwelling Unit	2.38
Employment/Population	0.35

Source: Cambridge Systematics

FIGURE 15. STUDY AREA AND SOCIOECONOMIC ANALYSIS ZONES

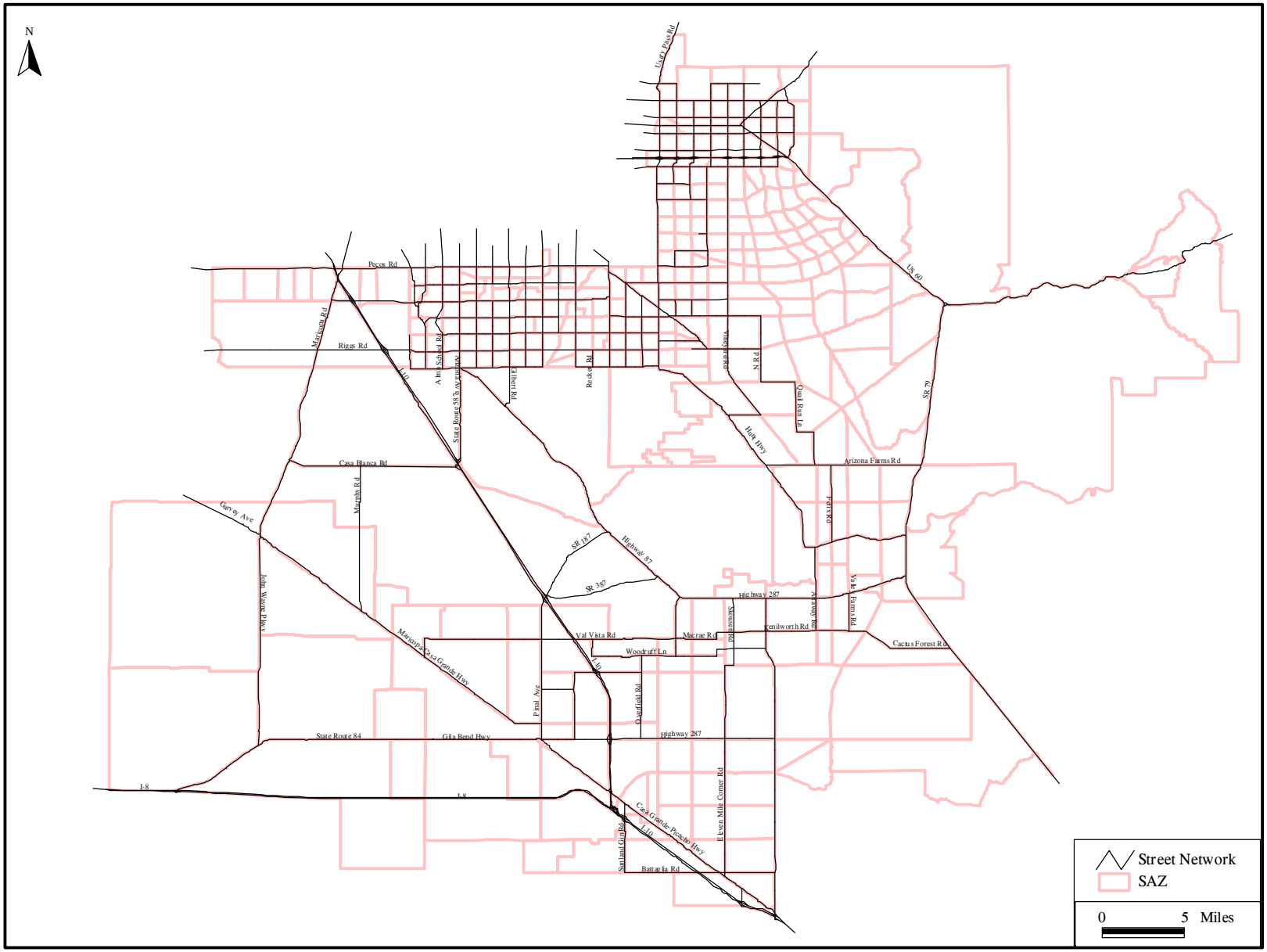
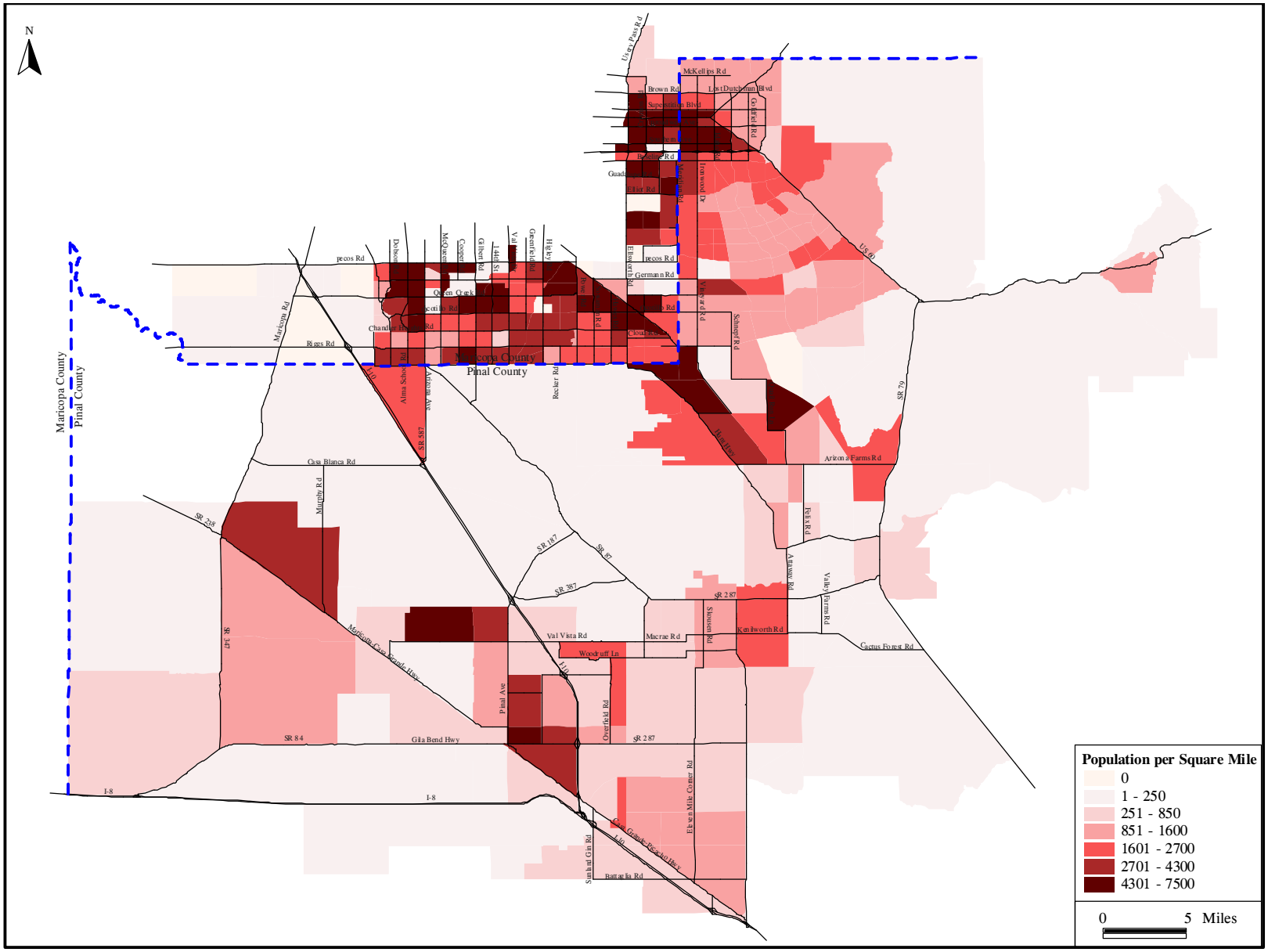


FIGURE 16. 2030 POPULATION DENSITY



Identification of 2030 Roadway Network

A 2030 base future network was defined excluding the four corridors under study by the Corridor Definition Studies. The 2030 base network was developed in collaboration with the three ADOT Study area Definition Study teams and Pinal County. The base 2030 roadway network shown in Figure 17 includes long-range improvements from the following sources:

- Improvements in ADOT Long-Range Transportation Plan (MoveAZ)
- Improvements in the MAG Regional Transportation Plan
- Arterials in the Apache Junction Small Area Transportation Study
- Expanded Arterial Road System in Pinal County developed by the study team and reviewed by Pinal County.

Figure 17 also illustrates the number of lanes assumed for the 2030 roadway network in vicinity of US 60. Improvements that are assumed to be completed in the 2030 base future network include the following:

- I-10 - 6-lanes plus HOV lanes south to Riggs Road
- I-10 – 6-laness south of Riggs Road through entire study area
- Loop 202 west of I-10
- Developed 4-lane arterial street system in south of Apache Junction in accordance with Apache Junction Small Area Transportation Study
- Expanded 4-lane arterial road system in Pinal County south of Apache Junction between SR 79 and I-10.

Estimation of 2030 Capacity Needs

The Pinal County Planning Model was used to estimate daily traffic volumes on the 2030 base network with the 2030 socioeconomic data. Figure 18 illustrates the traffic volumes and capacity needs for the vicinity of the US 60 study area. The figure shows that in 2030 existing four- lane US 60 would be over capacity for most of the length from the Superstition Freeway to SR 79.

SYSTEMWIDE CORRIDOR NEEDS ANALYSIS AND CORRIDOR CONCEPT

The needs analysis for systemwide corridor concept was carried out within the context of a larger area for the three ADOT Definition Studies (see Figure 19). This section documents the need for additional capacity within the study area and presents the systemwide concept developed to meet the needs for additional capacity.

FIGURE 17. 2030 BASE FUTURE NETWORK

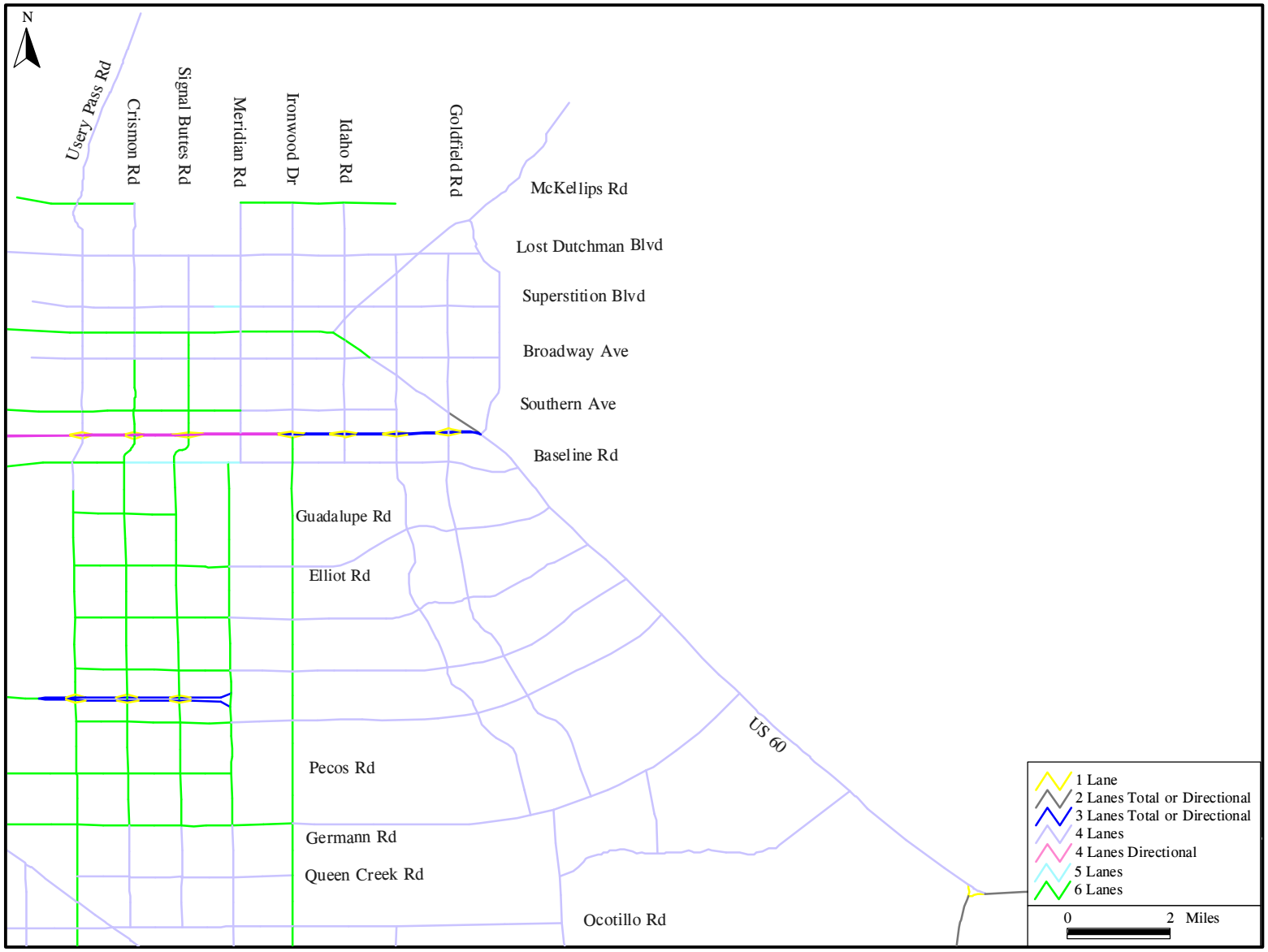


FIGURE 18. 2030 DAILY TRAFFIC VOLUMES AND CAPACITY NEEDS

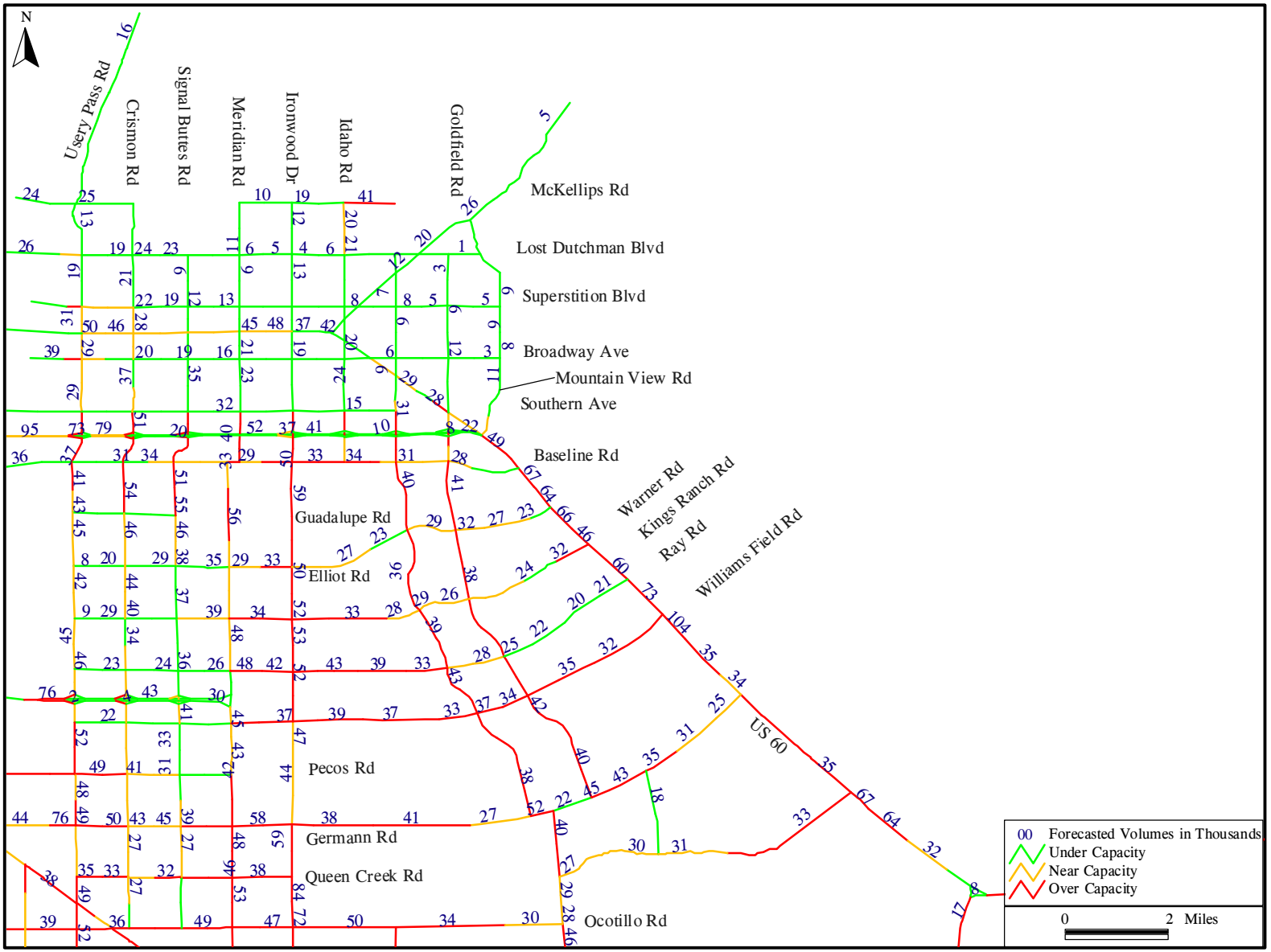
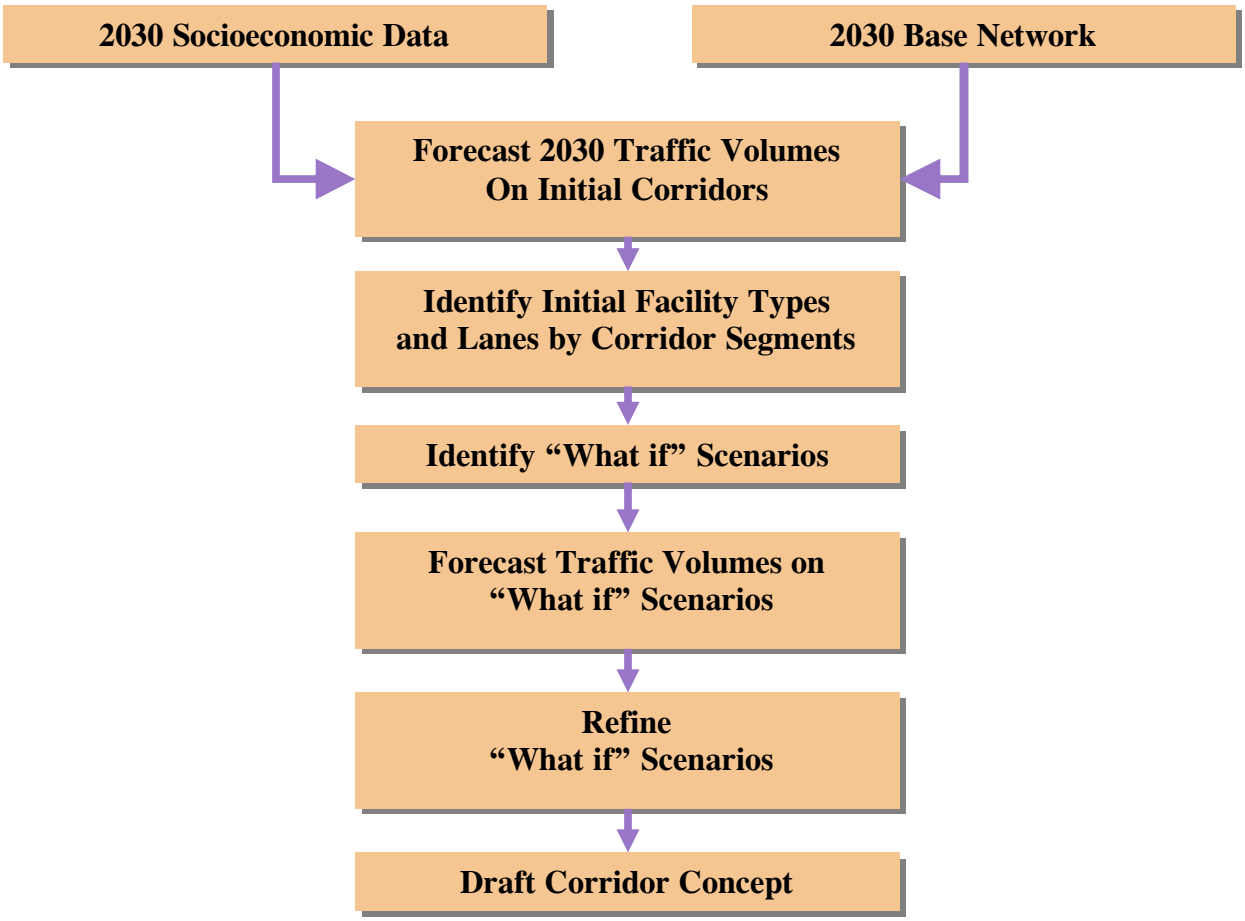


FIGURE 19. STUDY AREA NEEDS ANALYSIS PROCESS



SYSTEMWIDE CORRIDOR NEEDS ANALYSIS

The needs analysis for the corridors within the study area was carried out using the Pinal County Planning Model (PCPM) developed by the teams for the three ADOT Corridor Definition Studies. The development of the PCPM is described in *Working Paper 1: Existing and Future Conditions*.

The systemwide analysis began with looking at three system networks described below:

2030 Base Future Network. The 2030 base future network consists of the following facilities: 1) roadway projects included in MAG Regional Transportation Plan, 2) existing state highway system, and 3) an assumed 4-lane arterial street system in the Pinal County portion of the study area.

Enhanced 2030 network. The Enhanced 2030 Network included a 6-lane arterial street system in the Pinal County portion of the study area rather than a 4-lane arterial street system.

Four SEMNPTS Corridors. This network included all four corridors (as 4-lane freeways) that were identified in the *Southeast Maricopa/Northern Pinal County Transportation Study (SEMNPTS*) on the 2030 Base Future Network.

The PCPM model was used to forecast 2030 daily traffic volumes on the three system networks applying 2030 forecasted socioeconomic data. The 2030 forecasted socioeconomic data is document in *Pinal County Planning Model – Socioeconomic Estimates and Forecasts, June, 2005*.

The process for identifying the needs for individual corridors within the study area is illustrated in Figure 2. The starting point of the analysis was the four corridors identified in the SEMNPTS as shown in Figure 20. The four corridors were coded on the 2030 base future network in the PCPM and 2030 daily traffic volumes were then forecasted using the 2030 socioeconomic data for the study area. Each corridor was divided into segments and 2030 traffic daily volumes were reviewed for each segment by the consultant teams for the three ADOT corridor definition studies. Based on the magnitude of the traffic volumes, an initial facility type and number of lanes were identified for each corridor segment (see Table 12).

The next step in the process was to analyze various combinations of corridor segments in order to define a systemwide corridor concept. For this, "what if" corridor scenarios were defined for forecasting 2030 traffic volumes. Table 13 lists the scenarios that were developed for forecasting 2030 daily traffic volumes. The consultant teams then reviewed the traffic volumes to compare performance of the various scenarios. As the scenarios were tested, the system corridor concept was refined as to facility type and number of lanes.

Initial System Corridor Concept

Based on the systemwide needs analysis described above, an initial systemwide freeway Corridor Concept was developed by the three corridor definition study teams in coordination with ADOT. The systemwide corridor concept consists of the following corridor components:

- North-South Freeway Corridor beginning in the vicinity of Florence and merging with a corridor extending east from the MAG Williams Gateway Freeway
- Williams Gateway Freeway Corridor extended from the proposed MAG Williams Gateway Freeway at Meridian Road to the North-South Freeway Corridor
- A North-South Parkway Corridor from the Williams Gateway Freeway Corridor to US 60, Superstition Freeway
- US 60 Reroute Freeway Corridor from the Superstition Freeway to MP 205, west of the Renaissance Festival Site
- Multilane highway with grade-separated interchanges on the existing US 60 corridor from MP 205 (west of the Renaissance Festival Site) to Florence Junction at MP 212

FIGURE 20. FOUR INITIAL CORRIDORS

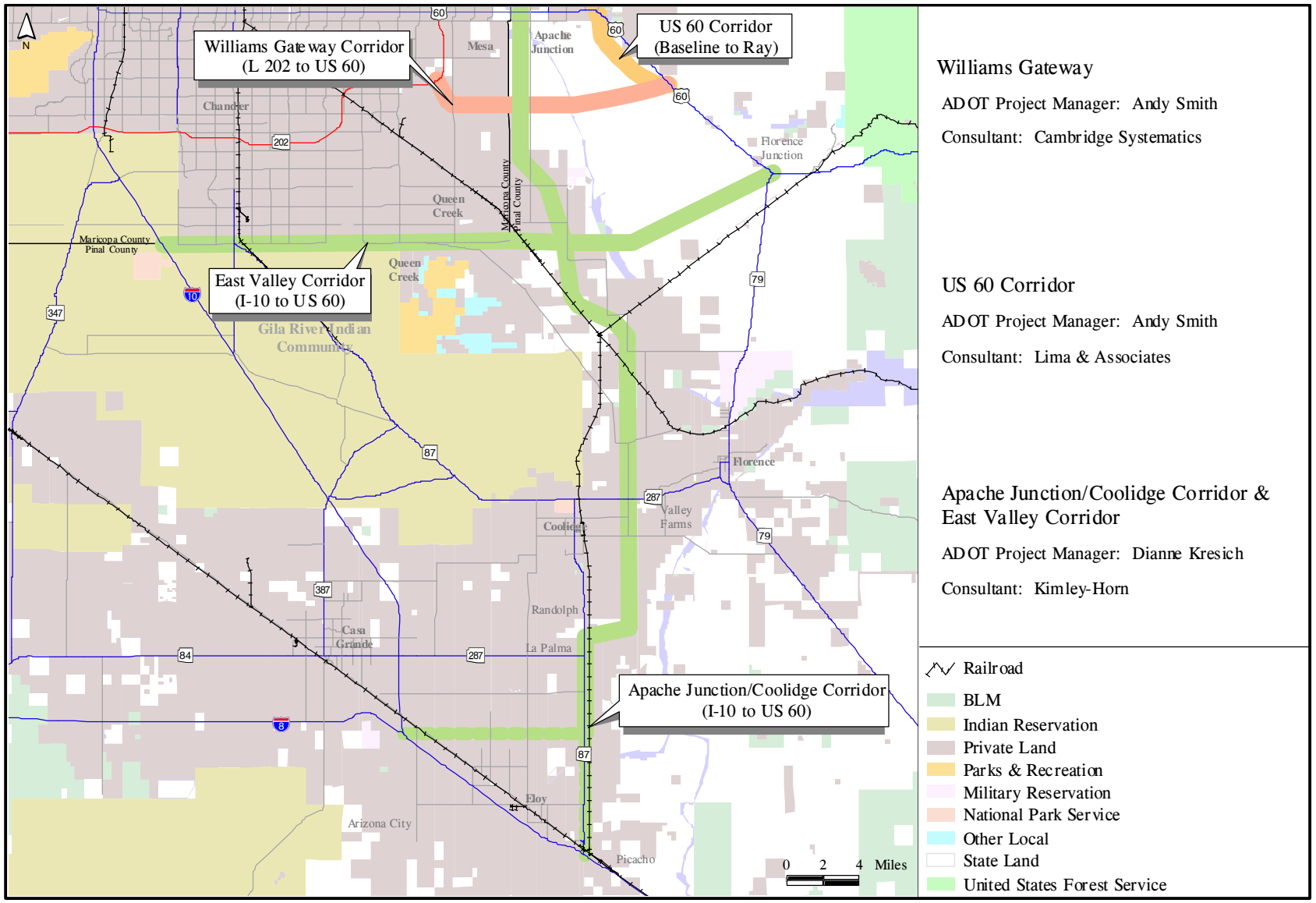


TABLE 12. ADOT CORRIDOR DEFINITION STUDIES INITIAL FACILITY LEVELS BY SEGMENT

Description	Starting Point Facility Level
Apache Junction/Coolidge Corridor (N-S Corridor)	
I-10 to Hunt Highway	4L to split; 2L to Hunt Hwy
Hunt Highway to East Valley Corridor	Freeway 6L
East Valley Corridor to Williams Gateway	Freeway 6L
Williams Gateway to US 60	Arterial (non-Freeway) 4L
East Valley Corridor (E-W Corridor)	
I-10 to Higley Road (Queen Creek)	Non-Freeway 6L
Higley Road to North/South Corridor	Freeway 6L
North/South Corridor to Florence Junction	Non-Freeway 4L
US 60 Reroute	
US 60 Freeway to Williams Gateway	Freeway 4L
Williams Gateway to US 60	Freeway 4L
US 60 Existing	Non-Freeway 4L
Williams Gateway Corridor	
Williams Gateway to Meridian (Maricopa County)	Freeway 6L
Meridian Road to North/South Corridor	Freeway 4L
North/South Corridor to US 60	Non-Freeway 4L

TABLE 13. ADOT CORRIDOR DEFINITION STUDIES 2030 SCENARIOS

First Set of "What if Scenarios"	
2030 Base Network - All freeway corridors including US 60 extension	- Williams Gateway connects to US 60 extension - 6 lanes on existing US 60
2030 Base Network - All freeway corridors - Without US 60 extension	- Williams Gateway connects to existing US 60 - 4 lanes on existing US 60
2030 Base Network - No freeway corridors	- Williams Gateway ends at Meridian - 6 lanes on existing US 60
2030 Base Network - All freeway corridors - Without US 60 extension	- Williams Gateway connects to existing US 60 - 6 lanes on existing US 60
2030 Base Network - All freeway corridors - Williams Gateway ends at North-South	- Without US 60 extension - 6 lanes on existing US 60 - east/west corridors removed
2030 Base Network - All freeway corridors - Williams Gateway ends at North-South	- Without US 60 extension - 4 lanes on existing US 60 - east/west corridors removed
2030 Base Network - All freeway corridors	- 6 lane US 60 extension - Williams Gateway as Freeway 4 lanes
2030 Base Network - All freeway corridors - 6 lane US 60 extension	- Williams Gateway as Freeway 4 lanes - no East-West, east of North-South
2030 Base Network - All freeway corridors - 6 lane US 60 extension	- Williams Gateway as Freeway 6 lanes - no East-West, east of North-South
Second Set of "What if" Scenarios	
2030 Base Network - All Freeway Corridors (WG to NS Corridor)	- Without US 60 Extension - 4 lanes on existing US 60
2030 Base Network - All Freeway Corridors (WG to NS Corridor)	- Including US 60 Extension (4 lanes) - 4 lanes on existing US 60
2030 Base Network - Closed Freeway Loop (Williams Gateway Freeway connects to US 60 Extension)	- 4-lane Arterial on "North-South", north of Williams Gateway Freeway
2030 Base Network - All Freeway Corridors (WG to NS Corridor) - Including US 60 Extension (4 lanes)	- 4-lane Arterial on "North-South", north of Williams Gateway Freeway
2030 Base Network - All Freeway Corridors (WG to NS Corridor) - Including US 60 Extension (6 lanes)	- 4-lane Arterial on "North-South", north of Williams Gateway Freeway

Source: Lima & Associates

Corridor Concept Plus

After reviewing 2030 traffic volumes in more detail for the initial system corridor concept, another systemwide alternative was created by upgrading the 2-lane state highways in the Pinal County portion of the network to 4 lanes. All other corridor components were integrated in the upgraded concept. This concept was labeled the Corridor Concept Plus. 2030 daily traffic volumes were then forecasted and capacity levels identified for the Corridor Concept Plus alternative. Figure 21 presents the 2030 daily traffic volumes and capacity levels for the 2030 Base Future Network as a comparison with the traffic volumes and capacity levels for the 2030 Corridor Concept Plus, shown in Figure 22.

SYSTEM PERFORMANCE

For all three corridor definition studies, Cambridge Systematics evaluated the systemwide performance of the five systemwide corridor alternatives previously discussed. The results of this evaluation are presented in a *Technical Memorandum: Corridor Definition Study Performance Analysis,* August 2005. The alternatives described above were evaluated using a common set of performance measures based on planning factors established by ADOT as part of MoveAZ. The five factors evaluated include: Mobility, Safety, Accessibility, Resource conservation, and Environmental justice.

The Mobility performance factor is the key factor related to the needs analysis. The following three key measures were used to estimate mobility (*Corridor Definition Study Performance Analysis,* August 2005):

- **Vehicle miles of travel** (VMT) provide a system-level estimate of total travel on the system. Increases in VMT above the base future scenario reflect latent demand that is not satisfied with the expected future transportation network.
- **Vehicle hours of travel (**VHT) provide a system-level estimate of the total time spent traveling on the roadway network. The relative change in VHT and VMT compared to the base scenario represents travel time savings provided by new investments.
- **Percent of miles in congested condition** provides an assessment of the level of congestion experienced on the roadway network. This measure is captured at two levels. The first level is the percent of highway miles that have a vehicle to capacity ratio over 1 (indicating that the number of vehicles attempting to use the road exceeds the capacity). The second level is the percent of highway miles that have a vehicle to capacity ratio over 1.5. This latter condition can be thought of as roads that are highly congested with bumper to bumper traffic.

FIGURE 21. 2030 BASE FUTURE NETWORK CAPACITY LEVELS

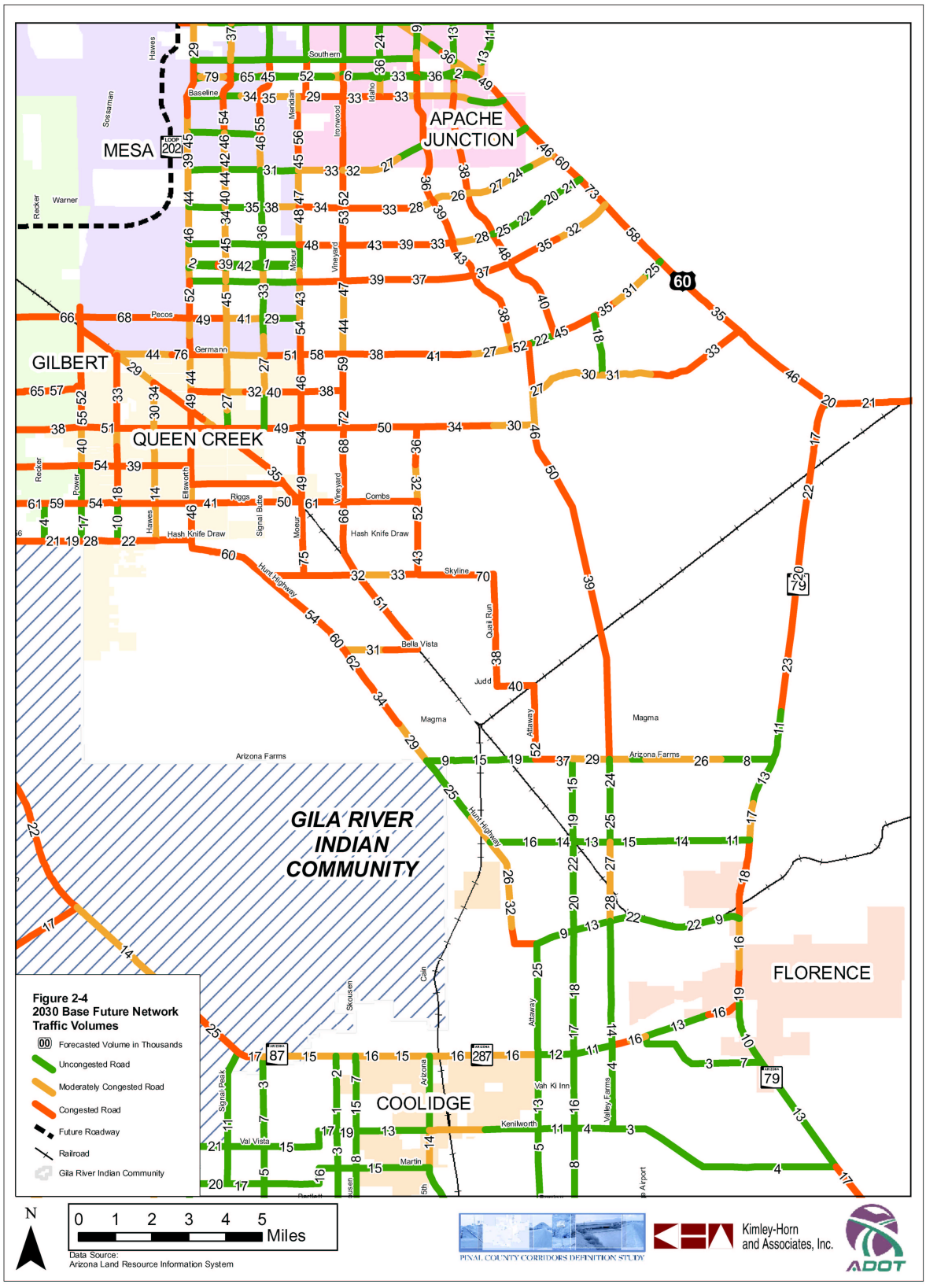


FIGURE 22. 2030 CORRIDOR CONCEPT PLUS CAPACITY LEVELS

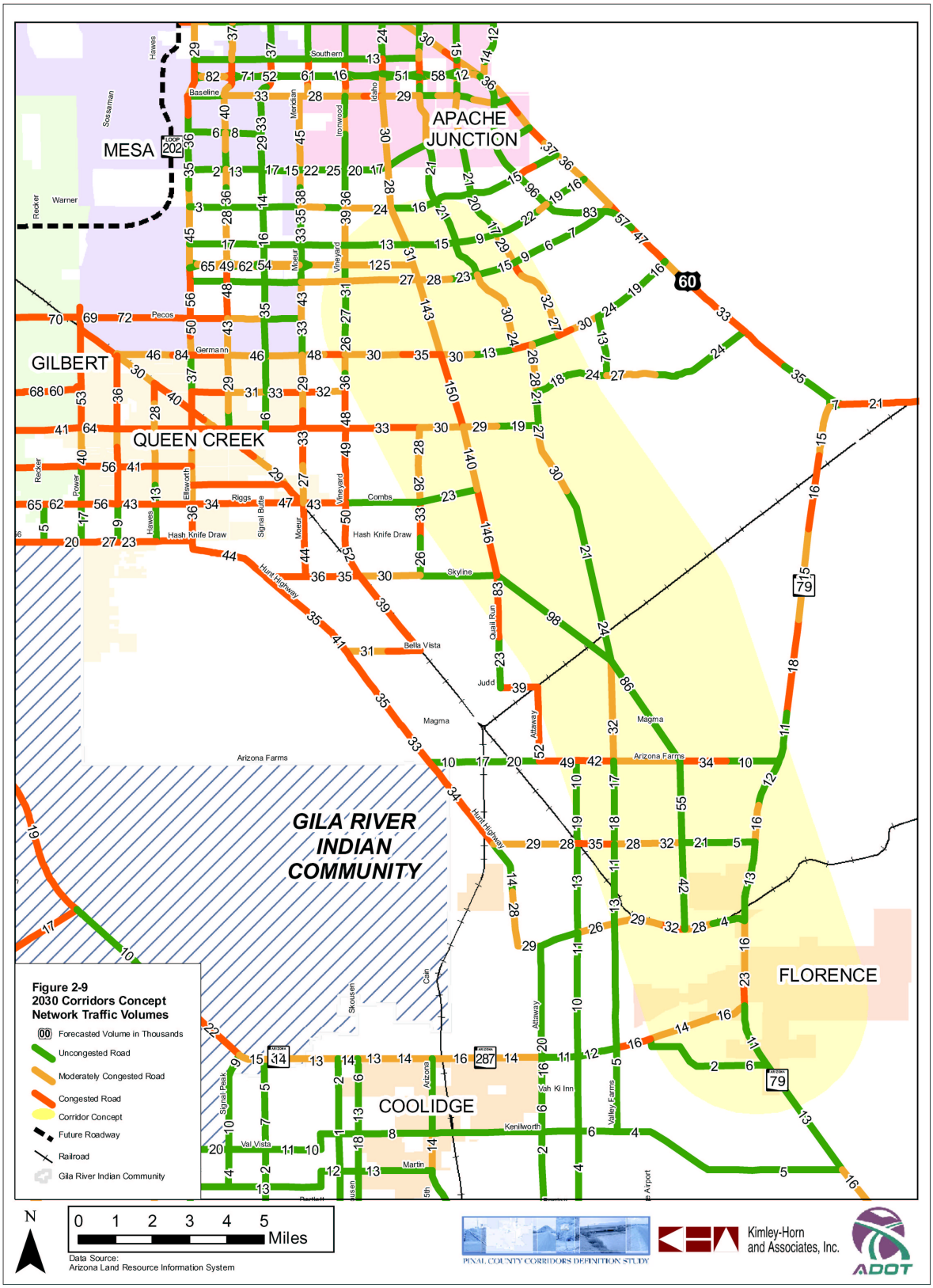


Table 14 presents the results of the mobility performance evaluation for the five alternatives:

TABLE 14. MOBILITY PERFORMANCE MEASURES BY SCENARIO

Scenario	Total VMT	VMT Deviation from Base	Total VHT	VHT Deviation from Base	Percent of Network Congested (v/c > 1)	Percent of Network Very Congested (v/c > 1.5)
Base Future	32,113,122		4,551,023		41.0%	7.9%
Enhanced Future	31,619,784	-1.54%	3,261,492	-28.33%	32.2%	3.0%
SEMNPTS Corridors	32,973,195	2.68%	2,682,051	41.07%	26.1%	2.1%
Refined All Corridors	32,955,369	2.62%	2,497,108	-45.13%	24.4%	1.7%
Corridor Concept	32,438,746	1.01%	3,207,121	-29.53%	29.2%	3.5%
Corridor Concept Plus	32,252,439	0.43%	2,994,424	-34.20%	27.9%	2.8%

Source: Cambridge Systematics, Technical Memorandum: Corridor Definition Study Performance Analysis, August 2005.

SYSTEMWIDE CORRIDOR CONCEPT

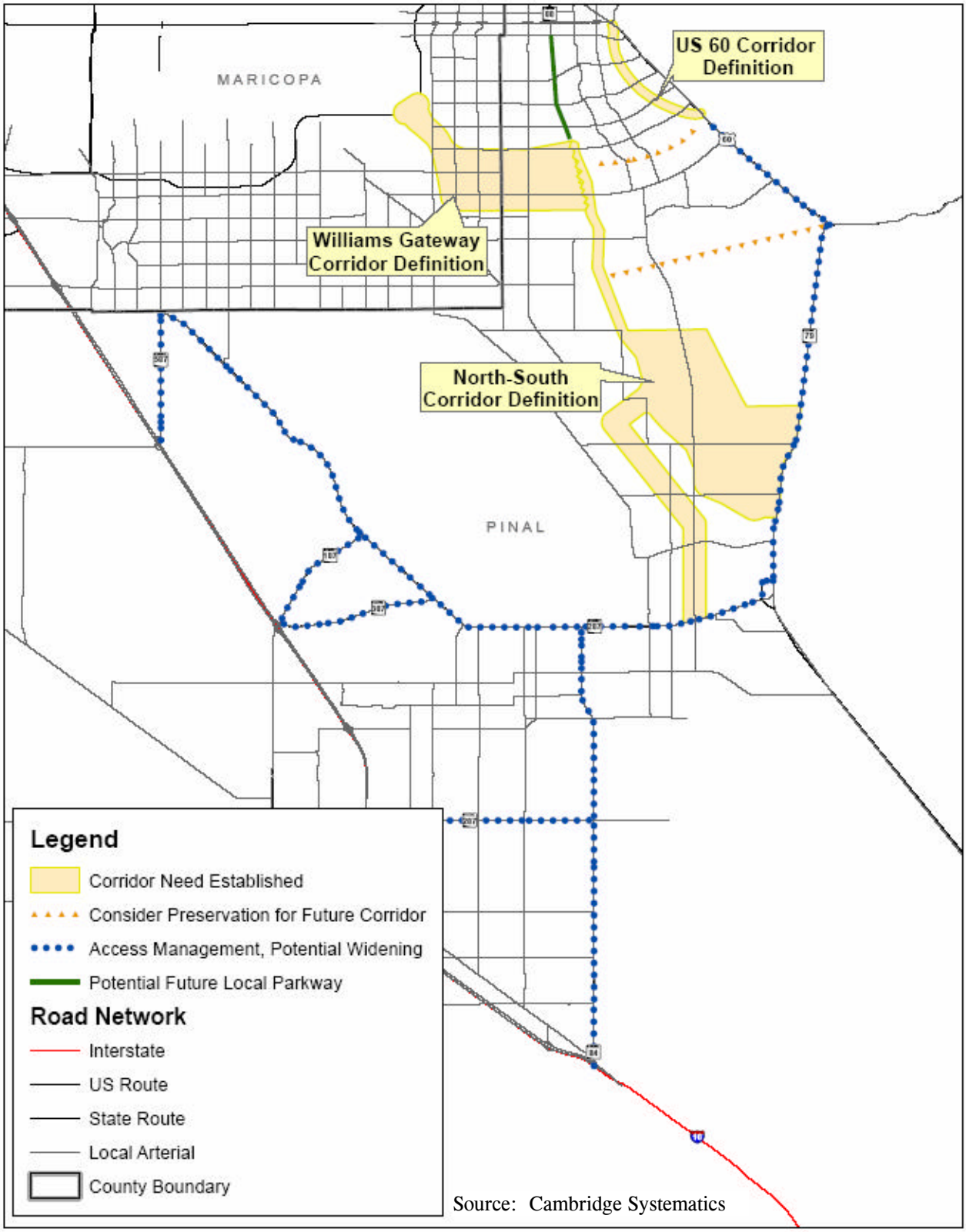
Based on the results of the systemwide needs analysis and the feasibility analyses, a draft systemwide corridor concept was developed as shown in Figure 23. The recommended corridor concept is essentially the "corridor concept plus" that was analyzed in the systemwide needs analysis.

Systemwide Strategies

The systemwide corridor concept includes the following system strategies:

- Protection of right-of-way is recommended for future corridors
- Widening and access management on all state highways is key as Pinal County grows
- New corridors cannot function without arterial street development and it is important for the county and local jurisdictions to develop an arterial street system.
- Coordination between ADOT and locals should continue in regard to:
    - Small Area Transportation Studies (SATS)
    - Regional Transportation Profiles for State Highways
    - State Access Management Plan
    - Other Agreements
- Comprehensive financial strategies need to be considered for funding the corridor concept including toll facilities.

FIGURE 23. 2030 DRAFT SYSTEMWIDE CONCEPT



Source: Cambridge Systematics

5. US 60 CORRIDOR NEEDS ANALYSIS AND CORRIDOR CONCEPT

This chapter presents the results of the US 60 corridor needs analysis and discusses the recommended US 60 Corridor Concept.

US 60 CORRIDOR NEEDS ANALYSIS

The results of the systemwide corridor needs analysis were reviewed to define a corridor concept for US 60 from the end of the Superstition Freeway to SR 79. The findings of the needs analysis for US 60 are presented below. The traffic volumes referenced in the discussion are from traffic forecasts for the 2030 Base Future Network and the 2030 Corridor Concept Plus model runs.

Without the US 60 Reroute

Existing US 60 - Superstition Freeway to Peralta Trails

2030 Daily traffic volumes exceed the existing US 60 capacity. 2030 daily traffic volumes range from 46,000 vehicles per day east of Superstition Freeway to 73,000 vehicles per day just west of Peralta Trails.

Existing US 60 - Peralta Trails to SR 79, Florence Junction

Daily traffic volumes are near the capacity of US existing 60. 2030 daily traffic volumes range from 58,000 vehicles per day east of Peralta Trails to approximately 33,000 vehicles per day west of SR 79.

With the US 60 Reroute

Existing US 60 - Superstition Freeway to Peralta Trails

Daily traffic volumes are near the existing US 60 capacity. 2030 daily traffic volumes range from 37,000 vehicles per day just east of Superstition Freeway to 36,000 vehicles per day west of Peralta Trails. The US 60 reroute diverts approximately 37,000 vehicles per day from existing US 60.

Existing US 60 - Peralta Trails to SR 79, Florence Junction

Daily traffic volumes are near the capacity of existing US 60. 2030 daily traffic volumes range from 47,000 vehicles per day just east of Peralta Trails to approximately 22,000 vehicles per day west of SR 79.

US 60 Reroute - Superstition Freeway to Peralta Trails

2030 Daily traffic volumes are near the existing US 60 reroute capacity. 2030 daily traffic volumes range from 96,000 vehicles per day just east of Superstition Freeway to 83,000 vehicles per day just west of Peralta Trails.

US 60 CORRIDOR CONCEPT

The results of the needs analysis were analyzed to define the corridor concept for US 60 from the end of the Superstition Freeway to SR 79. The appropriate facility type and number of lanes for the segments of the US 60 Corridor Definition Concept were determined by comparing the projected 2030 traffic volumes with the capacities of different facility types.

Recommended Concept

The recommended US 60 Corridor Definition Concept is illustrated in Figure 24. The concept includes a 6-lane US 60 freeway corridor generally paralleling existing US 60 from the end of the Superstition Freeway to just west of the Renaissance Festival Site. The freeway would be access controlled with access provided only at grade-separated interchanges spaced approximately one to two miles. The freeway would then connect back to the existing US 60 corridor as a 4- to 6-lane access-controlled multilane highway with access provided at grade-separated interchanges spaced approximately two to three miles apart. A Design Concept Report and Environmental Assessment will define the corridor alignment, facility cross-section, and interchange locations.

Renaissance Festival Site Access

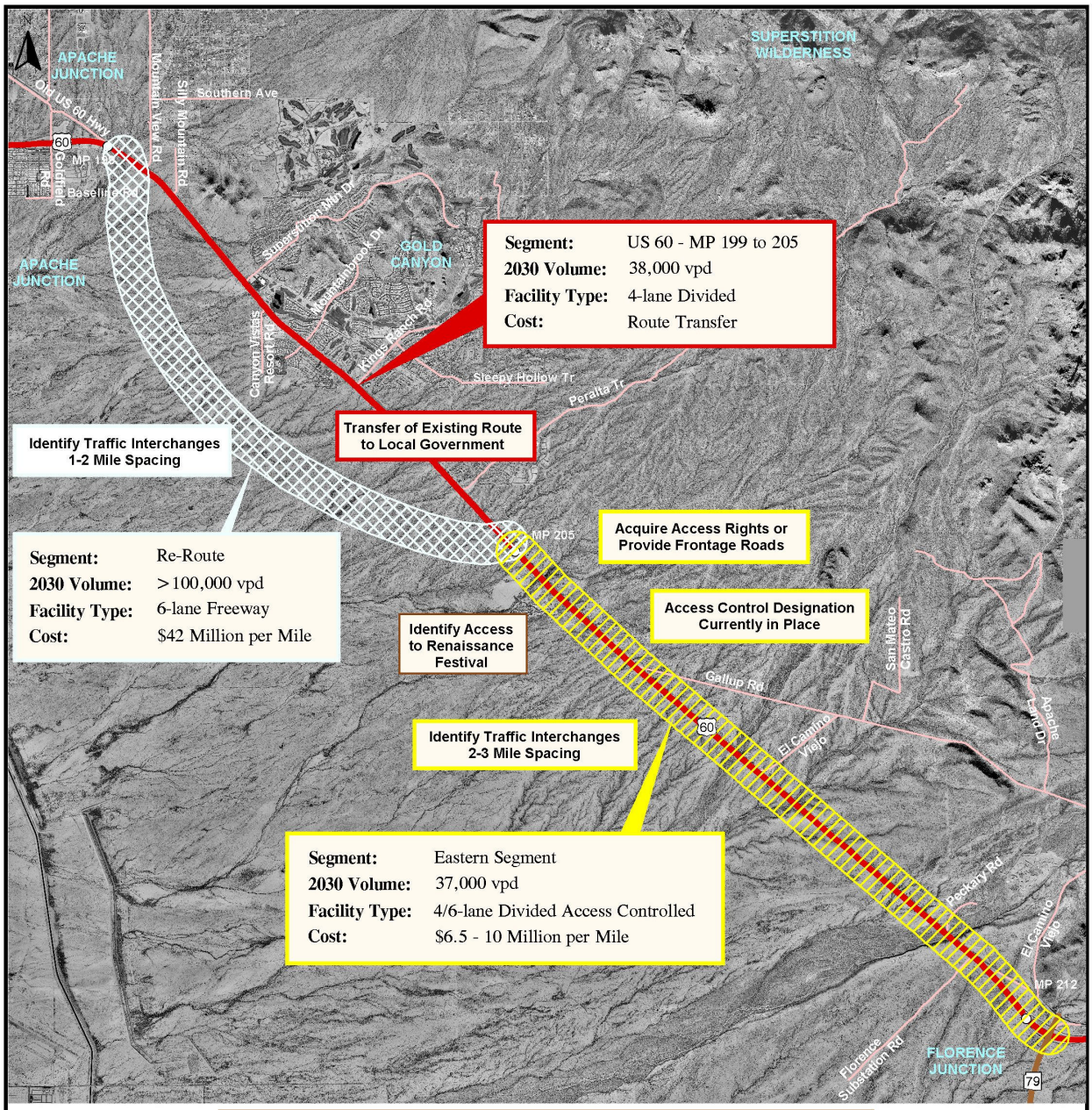
The access to the existing the Renaissance Festival site needs to be defined by a future DCR. Possible access options for the site include the following:

- An interchange on the US 60 multilane highway at the Renaissance Festival Site, between MP 205 and MP 206.
- Access via a frontage road system connecting an interchange on the freeway reroute at Peralta Trails to the Renaissance Festival Site.
- Extend the US 60 reroute east of the site and provide access to the site via an interchange on the reroute at Peralta Trails and via a second interchange east of the site at the existing US 60.
- Access to the current back side of the site via arterial streets connected to the US 60 reroute.

Access Management Strategies for the US 60 Segment from MP 205 to 212

The corridor concept proposed for US 60 calls for improvements to the segment east of MP 205 including possible widening and the establishment of an access-controlled facility. The following outlines the major characteristics of the access control concept.

FIGURE 24. US 60 CORRIDOR DEFINITION CONCEPT



* Integrate Multimodal Opportunities
* Integrate Land Use with Freeway
* Develop Local Arterial System to Support new Facility
* Local, County, Regional Participation in Planning and Funding
* Coordinate Access Control among ADOT, State Land Department, Pinal County Through Intergovernmental Agreement

US 60 CORRIDOR DEFINITION CONCEPT
US 60 CORRIDOR DEFINITION STUDY

Conceptual US 60 Corridor Reroute
Improved US 60 Corridor Segment
Existing US 60 Corridor

LIMA & ASSOCIATES
Transportation - G.I.S.

0 0.5 1 1.5 Miles

Access Management and Access Control

The purpose of Access Management is to preserve the capacity of public highways, maintain safety on those highways, and maintain access to private land in a manner that serves the public interest. Access is managed through the regulation of vehicular access to public roadways from adjoining property. Management of access is provided through legal, administrative and technical strategies available to political jurisdictions under their police powers in order to maintain health, safety, and welfare of their residents. Depending on the level of access management applied, full, partial, or no access control can be established.

Existing Access Control Designation for US 60

The Arizona Revised Statutes (ARS 28-601) defines a controlled access highway as "a highway, street, or roadway to or from which owners or occupants of abutting lands and other persons have no legal right of access except at such points only and in the manner determined by the public authority that has jurisdiction over the highway, street or roadway." On November 20, 1998, the Board adopted a resolution designating US 60 as an access-controlled highway. The resolution established access control on US 60 from the terminus of the Superstition Freeway in Apache Junction to the Tonto National Boundary and authorized the Director of ADOT to acquire right-of-way for access control.

Access Control Concept for US 60 Segment East of MP 205

In 1998 ADOT completed an Access Management Plan for US 60 from MP 199.17 to MP 217.34 in order to develop a long-term strategy for preserving and enhancing the highway's primary function as a high speed arterial. This plan was used as a resource to develop an access control concept for US 60 from MP 205 to SR 79. The recommended Access Management Concept for US 60 from MP 205 to SR 79 is a fully access-controlled 4- to 6-lane facility with frontage roads east of the reroute. Traffic interchanges would be located at:

- Renaissance Festival Site (between MP 205 and MP 206)
- El Camino Viejo (MP 208.8)
- El Camino Avenue (MP 210.3)
- Existing Traffic Interchange at SR 79 (MP 212.2)

The segment east of MP 205 to MP 212 currently passes mainly through undeveloped State lands. However, several privately owned parcels exist in or directly adjacent to the corridor segment. In addition, the Arizona Renaissance Festival is located at approximately MP 205.5 on land leased from the Arizona State Land Department. Further detail on the impact of the access-controlled facility on the adjacent property is presented in the chapter on Feasibility Analysis.

Implementation of Access Control

ADOT needs to partner now with the State Lands Department, Pinal County, and developers to acquire access rights along the existing US 60 corridor from MP 205 to SR 79. Also, consideration should be given to implement frontage roads or a parallel street system. Currently any zoning or rezoning application submitted to Pinal County for land that is adjacent to US 60 is being forwarded to the respective ADOT District for review and the issuance or denial of an encroachment permit. ADOT currently works on maintaining a high level of access management through the application of its permitting process. Recently, in the case of a particular parcel located in the US 60 corridor ADOT required the landowners to build a frontage roads in order to consolidate individual access points. This approach will allow ADOT to eventually continue the frontage road between future traffic interchanges on US 60 if needed. With increased development pressure particularly on the State lands, however, the management of access will become increasingly difficult.

Need for Coordination

The establishment of access control and implementation of improvements along the US 60 corridor will require planning, policy, and funding actions that transcend the authority and resources of any single unit of government. Land use decisions need to be coordinated with the roadway development to achieve access management and access control. In addition, site plans should include an internal circulation system to distribute traffic to interchanges or to frontage roads. The implementation of access management therefore needs to be coordinated between the local jurisdictions that have land use and zoning control, the agency that administers the roadway and the owners of land adjacent to the roadway. In the case of US 60 the coordinating agencies are ADOT, Pinal County, private land owners, and particularly the State Land Department.

The report *NCHRP Synthesis 337, Cooperative Agreements for Corridor Management, Washington DC, 2004* provides guidance on the various instruments to formalize contracts and agreements in regards to access or corridor management. According to the report the need to formalize cooperation has led many state transportation agencies to enter cooperative agreements with local governments and other affected parties that are aimed at strengthening land use and transportation linkages. These cooperative agreements often require each involved party to verify its level of commitment to managing the corridor and to specify their respective roles and responsibilities. Cooperation between agencies may take the form of:

- Resolutions
- Memorandums of understanding or agreement
- Intergovernmental agreements
- Some combination of the above listed methods

As mentioned, the Arizona State Land Department owns the majority of land along the US 60 corridor. To preserve access options for the ASLD parcels an approach similar to that applied

to SR 85 (I-10 to I-8) could be used and formalized in an intergovernmental agreement. As an example, in the SR 85 corridor ADOT and ASLD entered into a specific agreement that grants access control to ADOT along the ASLD parcels fronting SR 85 in exchange for right-of-way and a cost to cure payment to construct graded access roadways located parallel to SR 85 outside of the access control. This graded roadway will be continuous between the recommended access locations and will be constructed by ASLD as deemed necessary. ADOT will not construct nor maintain the graded roadway.

In case of the US 60 corridor the opportunity exists for ADOT, Pinal County, and the Arizona State Land Department to formalize the responsibilities in regard to land use decisions, zoning, master planning, and highway development to achieve access management in the interim and full access control ultimately.

System Connectivity

The future development of the US 60 corridor must be achieved within a systems context connecting to a future arterial street system, state highway system, and regional freeway system.

Arterial Street System

An east-west and north-south arterial street system must be implemented as the State Lands are developed both north and south of US 60. A well developed arterial street system will serve internal trips of future development and distribute trips to and from the US 60. If a well defined arterial system is not provided, the US 60 corridor will become overloaded serving short local trips rather than providing regional connectivity.

State Highway System

The recommended US 60 corridor will provide a high capacity connection from the end of the Superstition Freeway to SR 79. The proposed access-controlled improvements to US 60 east of SR 79 would provide a high level connection to the Town of Superior. The systemwide concept also includes potential widening of SR 79 south of US 60 providing a higher level connection to Florence.

Williams Gateway Freeway Corridor

The systemwide corridor concept does not include extending the Williams Gateway freeway to the east of the North-South Corridor within the 2030 timeframe. However, the concept does include protecting the right-of-way for a potential extension of the corridor to US 60. Questions that need to be addressed by future studies include the following:

- If the Williams Gateway Freeway Corridor is extended in the future to US 60, how will the extension of the Williams Gateway Freeway be aligned east of the North-South corridor?
- Where and how will the US 60 freeway connect with the Williams Gateway extension?

Possible scenarios on how to tie in the US 60 improvements with the Williams Gateway Corridor include the following:

1. Connect the US 60 freeway reroute and the Williams Gateway Freeway in a closed loop, connecting the loop freeway through an arterial street to the existing US 60 alignment at approximately Peralta Road.
2. Connect the Williams Gateway freeway to the US 60 freeway reroute with a system-to-system interchange. US 60 would continue as multilane facility to Florence Junction as recommended in the US 60 Corridor Concept.
3. Connect the Williams Gateway Freeway Corridor by a system-to-system interchange with US 60 east of the Renaissance Festival Site.

Further study and refinement will be necessary to identify the preferred solution for the tie-in of the Williams Gateway Freeway corridor and the US 60 corridor.

Multimodal Considerations

The area around the US 60 Corridor between Apache Junction and Florence Junction is expected to see substantial development in the near future. With an increase in population and activity multimodal transportation needs will also increase. These needs include accommodations for bicycles and pedestrians as well as supporting transit. With future street expansion and expected residential and commercial development multimodal considerations need to be incorporated into the design of the future US 60.

Transit Considerations

The US 60 study corridor between Apache Junction and Florence Junction is expected to be improved to accommodate future traffic needs and serve developing land uses. As population increases around the corridor the extension of transit services to serve these areas will be needed. US 60 serves as a regional transit route that currently reaches to the eastern portions of Mesa. Future regional transit routes utilizing this portion of US 60 may serve the Gold Canyon area and the developing portions of Apache Junction south of the corridor. Possible considerations include, designing for future HOV lanes, identifying future park-and-ride locations, identifying future stop locations, and identifying bus bay locations.

Local transit serving Apache Junction and the Gold Canyon area will need to both utilize and cross the US 60 corridor. Considerations for intersections, underpasses, and overpasses that

accommodate transit and transit users will be needed. If sections of US 60 are maintained as non-freeway sections local transit service may need to be accommodated including stops and shelters.

Pedestrian Considerations

Pedestrian considerations for a major corridor such as US 60 typically focus on preventing the corridor from becoming a barrier to pedestrian movement. In locations such as the Gold Canyon area where residential areas are separated from commercial uses it will be important to provide for pedestrian movement between the two uses. Key elements for supporting pedestrians include providing a connected network of sidewalks and crosswalk accommodations at intersections and/or underpasses and overpasses.

The Superstition Wilderness area draws extensive recreational use and can expect growth in access needs as the portions of Apache Junction south of US 60 develop. As development plans become further refined recreational trail and path locations will likely be defined. Consideration for dedicated pedestrian overpasses or underpasses should be made. Locations such as major wash crossings or connections to major trails should also be identified.

Bicycle Considerations

The existing US 60 corridor south of Apache Junction is currently identified as a "more suitable" bicycle route in the 2003 ADOT Statewide Bicycle and Pedestrian Plan. This designation is due to the relatively low traffic volumes for the majority of the corridor, few driveways or intersections, and the existence of wide paved shoulders. If portions of the corridor east of Gold Canyon are upgraded, bicycling might be prohibited depending upon the type of facility improvement. Parallel bicycle facilities may then need to be identified that provided similar connectivity, typically along local roadways. Existing sections of the US 60 corridor through the Gold Canyon area should maintain the wide paved shoulders for bicycle travel.

In addition to accommodating bicycle travel on and along the corridor it is important to ensure US 60 does not become a barrier to bicycle travel. Similar to providing accommodations for pedestrians this can be accomplished by providing considerations at intersections, underpasses and overpasses. Designing these facilities with space for bicycle lanes is the key element in accommodating cross bicycle travel. If major recreational paths or trails are identified that cross the corridor, the possibility of a pedestrian/bicycle overpass or underpass should be considered. In summary, the major transit and alternate mode issues impacting the study corridor include the following measures:

- Mitigating barrier effects of a rerouted or upgraded US 60 by providing cross connectivity (i.e. bridges or underpasses).

- Reserving ROW and planning for and incorporating High Occupancy Vehicle lanes in the reroute concept.
- Developing reroute concept in conjunction with possible light-rail extension plans.
- Providing opportunities for future regional transit use such as park and rides.
- Identifying future local transit needs and providing for future stops and routes including arterial streets and the existing US 60 in the Gold Canyon area.
- Accommodating bicycle use on the non-freeway section of corridor, while identifying parallel facilities to possible freeway sections where bicycling would be prohibited.
- Designing underpasses/overpasses that accommodate bicyclist and pedestrians, for possible freeway section.
- Designing intersections that accommodate bicyclist and pedestrians on the expanded US 60 section.
- Incorporating multimodal concepts in land use planning.
- Identifying and planning for a multimodal trail system to provide cross access to the recreational opportunities in the Superstition Wilderness area.

6. FEASIBILITY ANALYSIS

This chapter presents a planning level feasibility analysis for the US 60 Corridor Concept. The approach is general in nature because of uncertainties that will impact a final and specific corridor alignment. The detailed parameters for feasibility analysis are based on previous studies, the findings and conclusions of the inventory of existing and future conditions, and the results of the public participation efforts and agency and stakeholder input.

The US 60 corridor was analyzed using a set of screening criteria to incorporate issues, needs, fatal flaws, and constraints as well as future needs. The following main criteria were evaluated:

- Engineering opportunities and constraints
- Socioeconomic and land use
- Environmental
- Cost and right-of-way
- Community concerns

Each criterion was assessed to the degree it impacts the feasibility positively or negatively. Based on previous studies general right-of-way needs and order of magnitude costs for the draft corridor concepts were established. Additionally, the socioeconomic impacts of the concept were evaluated together with other impacts to adjacent property. The general economic and land use impacts were determined and possible economic opportunities and challenges are presented. The results of the feasibility analysis were summarized in an evaluation table in order to identify those criteria that might become constraints for the implementation of improvements or will support the corridor concept.

ENGINEERING FEASIBILITY

In order to assess the overall feasibility of any new corridor or significant improvements to the existing corridor, findings and results from previous detailed studies and plans were analyzed. The two main corridor segments are comprised of: 1) the US 60 freeway reroute from MP 199 to 205; and 2) improvements to the corridor segment form MP 205 to MP 212 as a fully access-controlled facility.

Table 15 presents a summary of engineering criteria for the two corridor segments as identified through this study effort and as documented by previous studies. No obstacles were identified that would preclude moving forward with the further development of the corridor. Consideration needs to be given to the impacts the new facility will have on visual impact, new ROW, cultural and environmental resource mitigation and particularly drainage requirements. Impacts regarding engineering feasibility along the eastern segment are confined to the existing ROW and are less of a challenge to overcome.

TABLE 15. ENGINEERING CRITERIA FOR IMPROVEMENT OPTIONS

Criteria	Reroute Improvements MP 199 to MP 205	Existing Alignment Access Control Improvements MP 205 to MP 212
Geometry and Traffic Operational Characteristics	Construct the new alignment as a 6-lane freeway with interchanges.	Reconstruct existing alignment to 4-6-lane cross-sections with interchange spacing of 2 to 3 miles. As development occurs additional interchanges might be needed.
Constructability	Construction of new alignment does not pose major constraints. No major problems with traffic maintenance during construction with the use of existing US 60. Freeway could be constructed in stages, followed by TI construction as development occurs.	Reconstruction of existing US 60 would require maintenance of traffic on the existing roadway.
Environmental Considerations	404 impacts Substantial change in visual quality and character from loss of natural vegetation. Potential habitat fragmentation. Loss of 350 plus acres of undisturbed desert. Noise impacts may need to be mitigated.	Negligible change in visual quality and character from existing conditions. Existing drainage ways can be maintained and structures can be expanded. Noise impacts may need to be mitigated.
Use of Existing corridor	Possible route transfer to Pinal County. Existing US 60 could be used for local traffic after completion of reroute.	The existing corridor will continue to be used.
New Right-of-Way	New right-of-way required: approximately 350 plus acres	Except for traffic interchange locations no new ROW required: approximately 50 plus acres.
Drainage Requirements	Requires new pipe culvert wash crossings new box culvert wash crossings and new bridge.	Use existing drainage ways. Extension and expansion of existing culverts may be needed.

Source: ADOT, *US 60 Design Concept Study, Draft Documents from Apache Junction to Florence Junction, BRW/ADOT, 1999*
ADOT, Access Management Plan, US 60 Apache Junction-Forest Boundary, October 1998.

ENVIRONMENTAL COMPLIANCE

The US 60 reroute as well as the continuation of the existing US 60 as a fully access-controlled facility are situated along the foothills of the Superstition Mountains. The potential reroute will be located along a corridor in undeveloped, pristine desert, while the continuation of the existing US 60 can be accommodated in existing transportation rights-of-ways. Four main issues are of consideration: topography and drainage, archeological sites, endangered species, and overall environmental compliance.

Topography and Drainage

Described as "valley topography," the study area is composed of alluvial fans southwest of the Superstition Mountains and is characterized by washes that flow from the mountains to the valley floor through fan shaped areas of alluvial deposits. Drainage is generally in the southwesterly direction, however, washes are not always clearly defined and flood plains are not easily delineated. Federal Emergency Management Agency (FEMA) designates Peralta Wash, Navajo Wash, and Queen Creek as a "Zone A" flood area, meaning that the areas are subject to 100-year flood events. The previous 1999 DCR indicated that a new freeway reroute would require 28 new pipe culvert wash crossings, 23 new box culvert wash crossings, and 1 new bridge. ADOT must closely coordinate with the state lands, Pinal County, Maricopa Flood Control District, and developers to ensure that drainage is adequately accommodated by the freeway facility and new development.

Archeological Sites

Previous surveys conducted for the potential US 60 reroute indicate that 26 recorded archaeological sites are located within a one-mile radius of the reroute alignment. Of those, a total of nine archeological sites are located within the project area of the reroute. The most likely areas of potential archaeological sites are in areas within the floodplains and washes.

The 1998 Access Management Plan identified several cultural resource sites, prehistoric trails, a historical marker, and historic sites including a Hohokam village, artifact scatters, and a 1930 roadbed. The "Old" and "New" Phoenix to Pinal Roads crossed US 60 west of Florence Junction. The assessment of the Access Management Plan concludes that several of the sites are potentially eligible for listing on the National Register of Historic Places (NRHP). Section 4 (f) of the Department of Transportation Act of 1966 (49 U.S.C. 303) stipulates that the FHWA may not approve the use of land from significant publicly owned park, recreation area, or wildlife or waterfowl refuges, or any significant historic site that is either listed on or eligible for listing on the NRHP. Access to the Peralta Trail leading into the Superstition Wilderness, as well as the "old" and "new" Phoenix to Pinal Roads can be considered potential 4 (f) properties.

Future studies of the reroute must conduct an assessment of possible archeological sites and identify potential mitigation for those sites.

Endangered Species

As discussed in the chapter describing the existing conditions, the undeveloped lands within the study area are pristine desert, vegetated primarily with Arizona Upland Sonoran Desert Scrub that supports habitats of a variety of smaller mammals, birds, and reptiles. Riparian communities within the study area play important roles in the feeding, nesting, resting, and traveling of wildlife species.

Arizona Game and Fish Department has stated that their records do not indicate the presence of any special status species, such as the Pygmy Owl, or any designated or proposed critical habitats in the study area.

Environmental Compliance

Previous studies cited the potential need for an Environmental Assessment as well as the need to obtain permits to address the Arizona Pollution Discharge Elimination System Program requirements. In addition, a potential need exists to address issues with the Clean Water Act, Section 404, with 42 potential wash crossings that were identified in the reroute corridor by the 1999 DCR. Other environmental concerns include hazardous sites such as the City of Apache Junction landfill, approximately two miles west of the study area and underground storage tanks along portions of existing US 60.

Initial assessments and findings from previous studies do not indicate the existence of a fatal flaw with environmental compliance precluding moving forward with further study of the corridors. However, an Environmental Assessment will be necessary to further study the environmental compliance for any projects undertaken for the US 60 reroute or improvements to the existing US 60 east of MP 205.

SOCIOECONOMIC CONDITIONS AND LAND USE

Development pressure is rapidly increasing in the study area. Next to the private developments in the Gold Canyon area, several other privately owned parcels east of Gold Canyon exist. The remaining land within the study area is primarily owned by the State and managed by the Arizona State Land Department, or is owned and managed by the federal Bureau of Land Management. The portion of the study area where the potential reroute is located lies completely on lands administered by the Arizona State Land Department. Currently the land is pristine desert and undeveloped.

Land Use

The study area for the reroute lies within the planning area of Apache Junction. Currently the Arizona State Land Department is undertaking a master planning effort *Lost Dutchman Heights* which has two components: a detailed planning effort south of US 60 encompassing the future city limits of Apache Junction and a second area extending south to the Germann Road Alignment.

The adjacent lands surrounding the existing US 60 corridor and the potential reroute could become home to several thousands of new residents. The subsequent travel demand will create the need for additional roadway capacity on a to be established arterial network as well as regional facilities such as US 60.

General Impacts of Freeway Construction

Land use immediately adjacent to a freeway and the uses served by the freeway are critical factors in planning and design for the particular facility. Freeways do not provide access to adjacent property and direct access to land uses to and from the freeway should be made only via arterial streets or primary highways at interchanges. Access to and from arterial streets and primary highways should be made at intersections that follow recognized standards of spacing from traffic interchanges. Maintaining this access hierarchy is critical to the maintenance of the freeway function and should not be compromised. Consistency in this principle protects the freeway infrastructure investment as land uses change and redevelop.

Freeway construction, as well as a potential conversion of the existing US 60 to a fully access-controlled facility has certain opportunities and constraints regarding regional and local land use planning:

- A new freeway will provide accessibility to undeveloped lands, providing the opportunity for residential and commercial development.
- Freeways should be designed to serve primarily through traffic and long distance trips.
- Scarce federal and state resources should not be used to provide access to adjoining properties to encourage development. Local area economic development activity should be implemented by local jurisdictions.
- Typical freeway development with frontage roads might encourage high intensity commercial development along side the freeway corridor rather than concentrating such development at major intersections.
- Strip development alongside the freeway may buffer other land uses from noise and visual impacts but it also may encourage automobile dependency and/or sprawl.
- The number of traffic interchanges influences safety and traffic flow on the facility.
- Freeway facilities that are initially built to arterial or expressway standards as part of initial staging should avoid temporary access that will require removal at full freeway development.
- Protection of the infrastructure investment in freeways is optimized by planning and designing a system that limits freeway access and egress to properly spaced interchanges and maintains the land access function with lower standard roadways.
- Depending on the distance to the freeway, benefits conveyed by freeway construction accrue to property owners in the form of aggregate increases in property values and vary among different types of properties.
- Local governments might improve the return generated by freeways through appropriate zoning decisions.

In regard to the freeway reroute, several additional issues should be considered:

- The distance between the new facility and the existing US 60 will be relatively narrow where the freeway ties to the Superstition Freeway at the northwestern end and to MP 205 at the southeastern end. This may render land in these areas not useable.
- The land area between the new facility and existing US 60 will be odd shaped and may not be conductive for effective use of the land.
- The reroute facility itself as well as new traffic interchanges will require considerable amounts of additional ROW.

Since the potential reroute would be located in undeveloped land, the opportunity exists to integrate the freeway construction with land use planning such as incorporating nodal mixed-use development concepts at interchange areas. In addition, the opportunity exists to plan for development to occur at the cross roads.

Access-controlled Eastern Segment

The segment east of MP 205 to MP 212 currently passes mainly through undeveloped State lands. However, several privately owned parcels exist in or directly adjacent to the corridor segment. In addition, the Arizona Renaissance Festival is located at approximately MP 205.5 on land leased from the Arizona State Land Department. The Festival is held in February and March each year for eight straight weekends, including President's Day (Monday). This event attracts approximately 250,000 visitors annually, or an average of 14,706 visitors a day.

The following privately owned parcels exist:

1. At approximately Milepost 207.7 a parcel of land straddling the ADOT ROW corridor to the north and south contains around 13 lots most of which are zoned commercial. One of the parcels on the south site will be occupied by an Ace-hardware store. Two of the northern parcels are zoned for Recreational Vehicle Park.
2. The master planned community "Entrada Del Oro" is located two miles north of US 60 at MP 208.4 and is accessed via El Camino Viejo. Approximately 1,200 homes are being planned in the development.
3. Another master planned community is being developed on a property called "Ranch 160" that located just north of US 60 at MP 210.2.
4. A parcel east of MP 211 is shown on the Pinal County zoning map as "Reversion General Rural" – one unit per 1¼ acres. A commercial real estate broker is currently offering that parcel in addition to land immediately to the east for sale.
5. The area surrounding the interchange of SR 79 and US 60 is partially owned by the ADOT or is privately held – portions of the land are currently offered for sale.

Currently any zoning or rezoning application submitted to Pinal County for land that is adjacent to the State Route is being forwarded to the respective ADOT District for review. In the case of the parcel at MP 207.7, ADOT recently required the landowners to build a frontage road in order to consolidate individual access points and to eventually continue frontage roads between future traffic interchanges on US 60.

COSTS AND FUNDING

Construction and right-of-way costs were estimated for the US 60 reroute and for the improvement of US 60 east of MP 205.

Construction Costs

A recent report: *Performance Audit of Arizona Department of Transportation: Review of the Oversight and Management of the Maricopa County Regional Freeway System, June 2005* provides average construction cost averages for freeway construction in the Phoenix Metropolitan area. The report quotes an average capital construction cost of $3.08 million per lane mile of the Regional Freeway System. In addition, in April of 2004 MAG reported that the total cost per Regional Freeway System centerline mile was $39 million. In 2005 the cost estimate of $39 million was reviewed by ADOT personnel and based on increased land values and escalating construction cost revised to $42 million a mile. The cost estimate includes a 6-lane freeway cross section with service and system to system interchanges.

Right-of-way Costs

The US 60 reroute is entirely within state lands. The most recent data available from the State Land Department indicate that the average sales price per auctioned acre of land throughout Arizona was $187,200 in 2004. In areas of strong development pressure the average sales price has been exceeded by far. ADOT does not have to bid on State Lands property at public auction rather has to pay the State Land Department the appraised value of the land to obtain an easement for a roadway. The average sales price for State Land properties is an adequate indicator for possible ROW cost in the absence of an appraisal. Applying the 2004 average the cost of the 351 acres potentially needed for the reroute alternative could increase to $65.7 million.

In order to address the high cost of ROW purchase ADOT should explore two options. First, ADOT should enter into cost-sharing agreements among stakeholders, and secondly to negotiate an approach with the Arizona State Land Department by which the ROW for the Reroute alternative will be reserved now and future developers to dedicate the ROW at the time of their development planning.

Mitigation of Pygmy Owl Habitat

Based on a recent statement from the Arizona Game and Fish Department, the habitat-replacement may no longer be required. In order to determine the need for the Pygmy Owl habitat replacement, an Environmental Assessment needs to be conducted for the Reroute Alternative. The previous cost estimates for the 1999 DCR also included additional funds in the amount of $27 million for potential Pygmy-owl habitat replacement.

Existing US 60 from East of Peralta Trail to Florence Junction

US 60 east of Florence Junction is currently being upgraded to a 4-lane divided access-controlled highway with traffic interchanges. The six mile segment from Florence Junction to Queen Valley is programmed for construction at a cost of $39 million or $6.5 million a mile. With additional interchanges, the per mile construction cost could reach $10 million per mile. When applied to the seven mile segment for US 60, the cost for the upgrades would range from $45.5 million to $70 million.

If the segment from Peralta Trail to Florence Junction is being upgraded to freeway standards similar construction costs need to be applied for the western segment. Using the capital construction cost of $3.08 million per lane mile, total construction costs for the seven mile segment would be $86.2 million. Table 16 summarizes the cost estimates for the Reroute and existing US 60 from MP 205 to MP 212.2. Total costs for the corridor improvements are estimated at $381.4 million.

TABLE 16. ESTIMATED COSTS FOR US 60 CORRIDOR IMPROVEMENTS (MILLIONS)

Corridor Segment	Construction	Right-of-Way	Total
US 60 Reroute – Superstition Freeway to MP 205 (7.2 miles)	$236.7	$65.7	$302.4
Existing US 60 – MP 205 to MP 212.2	$70.0	$9.0	$79.0
Total	**$306.7**	**$74.7**	**$381.4**

AVAILABLE FUNDING

At this time, there are no dedicated funds for the US 60 Reroute or the improvement of existing US 60 from MP 205 to MP 212, Florence Junction. The following section describes current state and county funding sources. Further detail on funding and finance issues is being provided by the *Funding and Finance Technical Memorandum* that was developed by Cambridge Systematics.

ADOT Corridor Funding

The ADOT *Five-Year Transportation Facilities Construction Program* is funded through federal highway trust funds, transportation excise tax monies and state highway user revenues. The FY 2006 – FY 2010 program totals $5.1 billion, covering construction, reconstruction, pavement preservation, safety, research, mapping and other minor projects.

Over the five-year program period, the Maricopa County urban freeway system will receive nearly $2.8 billion of the expected funds allocated under the Corridor Improvements category. The primary source of this program is the transportation excise tax assessed by voters in Maricopa County. Another portion of this program will be financed by 15 percent controlled access funds and federal funds dedicated to the MAG area. Subtracting the MAG funds from the System Improvements category leaves ADOT with approximately $1.2 billion over the five year period for statewide improvements. Therefore, approximately $100 million are available annually for corridor improvements statewide.

According to the ADOT program, projects in Pinal County has been allocated just over $104 million for the FY 2006 – FY 2010 program, with yearly amounts ranging from $300,000 to $46 million over the five year program period.

Pinal County Corridor Funding

In 1986, Pinal County passed a half-cent sales tax to fund construction, reconstruction, maintenance, repair and roadside development of streets and bridges. Revenue from the tax is shared between eight incorporated cities and towns and the County. The revenue is distributed according to a population based formula. The formula allocated approximately 65 percent of tax revenue to the incorporated cities and towns and the remaining 35 percent to the unincorporated portions of Pinal County. According to a 1997 performance audit, the excise tax comprised approximately 25 percent of primary stable road funding for the County, which is responsible for unincorporated roadways.

The 1997 audit also found that the County was spending 90 percent of its excise tax monies on new road construction and reconstruction projects. In 1997 this accounted for approximately $2 million of revenue. According to the Pinal County Budget Office the 2004 - 2005 the County's portion of tax revenue had grown to approximately $3.8 million Assuming the County continues to allocate 90 percent of these funds for construction and reconstruction projects, an estimated $3.4 million are available in 2004 – 2005 for new road construction and reconstruction projects from the ½ cent excise tax.

Summary of Available Funding

In summary, under current funding scenarios ADOT has approximately $100 million available annually for major improvements on a statewide basis. Considering the need on other high priority corridors in the state, available funding will most likely not be sufficient to provide

funds for the proposed improvements on US 60. In addition, the available funds from Pinal County are very limited. In light of the limited funds available and the high cost of the improvements as well as the availability of funds, other sources of funding are needed for the implementation of the US 60 improvements.

A comprehensive financial analysis for all the corridors recommended in the system concept will be undertaken in the next steps of the process. Further detail on funding and finance issues will be provided in a Financial Feasibility Analysis Technical Memorandum that is currently being developed by Cambridge Systematics.

COMMUNITY CONCERNS

The US 60 Corridor Definition Study has been undertaken with extensive public participation and coordination effort that included TAC meetings, stakeholder group meetings, and public meetings. The input from the public participation events has been summarized in public involvement summary reports.

Technical Advisory Committee

The development of the US 60 Corridor Concept was a joint effort with the TAC. The TAC provided input throughout the process to the consultant in the evaluation of issues and needs as well as developing a US 60 Corridor Concept.

Public Input

Input gathered during the study indicates strong support for the US 60 reroute concept from the end of the Superstition Freeway to approximately MP 205. However, some members of the general public as well as stakeholders suggested that the reroute concept should be extended to Florence Junction.

As mentioned, many of the participants at the public meeting were in favor of re-routing US 60 from its existing alignment within the Gold Canyon area. Previous studies also support this approach especially considering the impacts a 6-lane freeway would have within the community of Gold Canyon:

- Possible takings of established businesses and residences
- Substantial change in visual quality from sound barriers and elevated roadway
- Environmental mitigation measures and associated cost
- Acquisition of ROW in the established community
- Two-way frontage roads would create additional intersections impeding traffic flow and increasing difficulty of traffic operations within Gold Canyon.

- Need to construct frontage roads first to carry main line traffic during construction of access-controlled mainline - difficult construction phasing
- High cost of facility resulting from mitigation measures

Agency Support

Pinal County

Representatives from Pinal County expressed their strong support for the reroute of US 60. Some County representatives were in favor of extending the reroute corridor concept as a parallel facility to Florence Junction. However, County representatives indicated that the County was willing to work with ADOT and the State Lands Department to control access on US 60 from MP 205 to Florence Junction. Pinal County elected officials as well as County staff indicated that they are opened to the transfer ownership of the existing US 60 into the County Roadway system once a potential new facility is build.

Apache Junction

Representatives from Apache Junction indicated their support for the reroute concept and the proposed improvements on the existing US 60 east of MP 205 to Florence Junction.

Gold Canyon

The residents of Gold Canyon, homeowner association representatives and other Stakeholders, such as the Superstition Area Land Trust organization, voiced very strong support for the reroute concept.

Stakeholder Support

State Land Department

The Arizona State Land Department (ASLD) is the major land holder in the area. While representatives from the State Land Department expressed their support for the US 60 reroute, concerns were expressed over the need to extend the reroute as a parallel facility east of MP 205. Representatives from the ASLD pointed out that the development of the facility would need to reflect the specific environmental conditions in the study area. Particularly drainage concerns and issues will need to be incorporated in the design of the facility. In addition, the reroute concept needs to be integrated in the Master Planning effort of the ASLD.

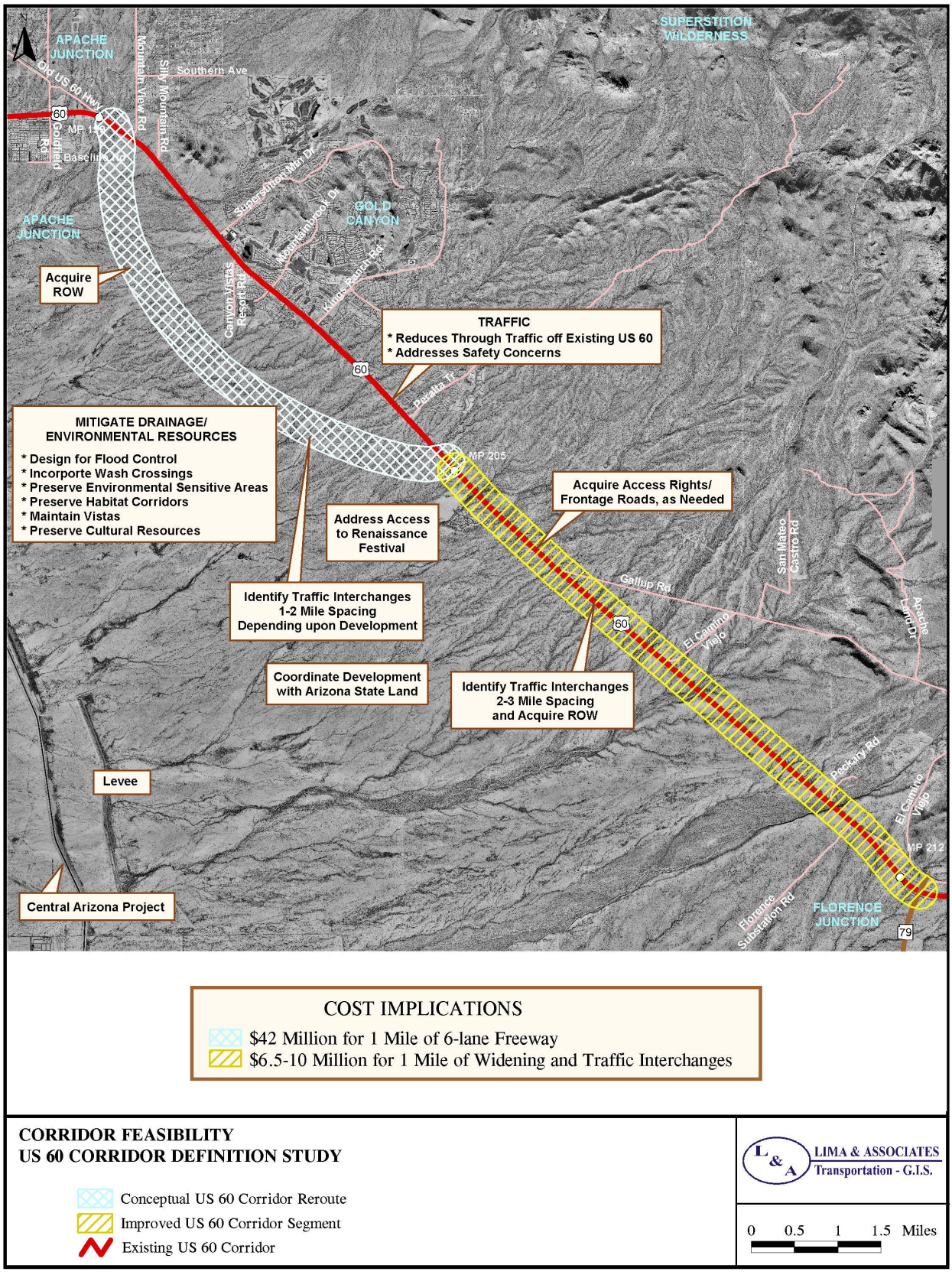
FEASIBILITY SUMMARY

Table 17 summarizes the main feasibility criteria for the US 60 reroute facility and the improvements to the existing US 60 from MP 205 to MP 212. Figure 25 presents an overview of the feasibility issues. Overall, no obstacles have been identified at the planning level feasibility analysis that would preclude ADOT from further studying the US 60 Corridor Concepts. Several issues however will need to be addressed in detail, most importantly the coordination with the local jurisdiction and particularly with the State Land Department. Environmental compliance as well as drainage issues will need to be dealt with in detail. New ROW will need to be acquired primarily for the reroute facility. In regard to implementation, the major task will be the identification of funding sources for the improvements.

TABLE 17. FEASIBILITY OF US 60 REROUTE AND IMPROVEMENT OF EXISTING US 60 MP 205 TO MP 212 (SR 79)

US 60 Reroute (MP 199 to MP 205)	Existing US 60 Centerline (MP 205 to MP 212)
Engineering Opportunities and Constraints • Construction on undeveloped land. • Parallel roadway capacities. • Avoids difficult traffic operations within Gold Canyon. • Reroute can be built in undeveloped lands without takings of established businesses and residences.	**Engineering Opportunities and Constraints** • Designated access-controlled state highway. • Improved facility can be tied in with improvements east of Florence Junction.
Socioeconomic and Land Use • Impact on area between existing US 60 and reroute – commercial area along both existing US 60 and reroute. • Two parallel commercial corridors. • Opportunity for partnering with state lands. • Reroute will lessen impacts on existing residents in Gold Canyon.	**Socioeconomic and Land Use** • Limited private property. • Need to mitigate impacts to current adjacent properties. • Keep commercial hubs along existing US 60. • Integrate facility improvements in land use planning.
Environmental • Requires drainage and environmental mitigation. • Requires mitigation of impacts on adjacent land use. • Reroute will avoid changes to visual quality in Gold Canyon from otherwise necessary sound barriers and elevated roadway.	**Environmental** • Drainage ways defined. Parallel facility would require complete new drainage and structures. • Need to mitigate land use and environmental resources. • Less environmental impacts than a possible parallel facility.
Cost and Right-of-Way • Reroute requires 7 miles of new 300' to 400' ROW – additional ROW at interchanges. • Reroute would avoid cost for frontage roads and ROW in currently developed area.	**Cost and Right-of-Way** • Available seven miles of 300 foot ROW – space for 6-lane divided median with frontage roads. • Need to acquire access rights or require frontage road or internal circulation for adjacent property. • Opportunity to partner with state lands on access rights. • May need new right-of-way at 2 interchange locations. • Less ROW cost than a parallel facility on state lands.
Community Concerns • Support from community and agencies. • Will divert through traffic from existing US 60 in Gold Canyon. • Reroute will possibly divert traffic from existing businesses in Gold Canyon area.	**Community Concerns** • Support from community and agencies. • State land department in favor of improvements to existing facility. • With careful planning fewer impacts.

FIGURE 25. CORRIDOR FEASIBILITY



7. CONCLUSIONS

SYSTEMWIDE RECOMMENDATIONS

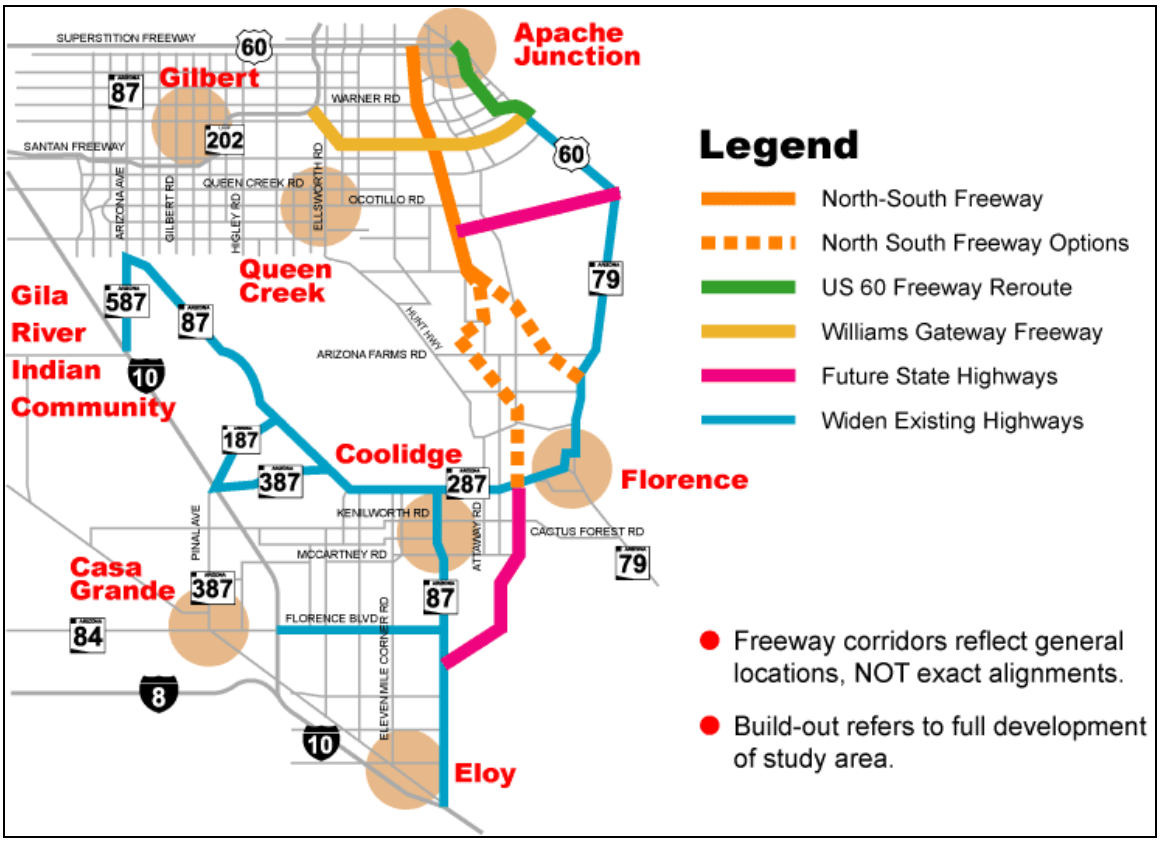
This study in coordination with the Pinal County Corridors Definition Study and the Williams Gateway Corridor Definition Study developed a systemwide corridor concept as previously shown in Figure 23. This concept was presented to the stakeholders and at Public Open Houses in August 2005 to obtain opinions and ideas on the concept. In addition, the systemwide concept was presented to the State Transportation Board (STB) in October 2005.

After the second set of Open Houses was completed, ADOT management and staff received numerous requests for additional discussion about the recommended corridors presented during the Open Houses. In response, ADOT management chose to conduct individual stakeholder meetings with each of the jurisdictions within the study area for the three corridor definition studies to gain a better understanding of the concerns. Eleven additional stakeholder meetings were conducted between November 2005 and February 2006 with jurisdictions, groups, and individuals impacted by the plan.

- East Valley Partnership
- City of Chandler
- Maricopa County Department of Transportation
- City of Gilbert
- City of Apache Junction
- Pinal County
- Florence
- Rose Law Group
- City of Coolidge
- City of Mesa
- Town of Queen Creek

Many of the stakeholders voiced an opinion that growth in the area will be more rapid than projected by this study and that the corridor concept should be refined to recognize the possibility of faster development by designating specific freeway corridors within the 2030 time frame or perhaps earlier. In addition, as a result of the uncertainties, several stakeholders thought that ADOT should consider the ultimate build-out system, instead of a system designed for 2030. Based on comments from the stakeholders, the systemwide concept in Pinal County was revised a shown in Figure 26. The revisions were presented by ADOT at three public meetings in Gilbert, Florence, and Queen Creek.

FIGURE 26. BUILD OUT OF STATE TRANSPORTATION SYSTEM IN PINAL COUNTY – FINAL STUDY RECOMMENDATIONS



The final recommendations were presented to and approved by the ADOT Transportation Board on February 17, 2006 in Casa Grande. The primary changes include:

- Designating the Williams Gateway Corridor as a freeway from the Maricopa County line to US 60 to the east, thus connecting the SR 202 Loop to US 60.

- Designating a future state highway from the North-South Freeway to the US 60/SR 79 interchange at Florence Junction.

- Designating a future state highway from SR 287 to SR 87 in the Florence-Coolidge area.

- Designating a local parkway from the Williams Gateway Freeway to US 60 to the north in the Apache Junction area (this remained unchanged from the original concept).

An integral part of the corridor concept is that ADOT, Pinal County, local jurisdictions, developers, and Arizona State Lands will partner to preserve right-of-way on the designated corridors.

US 60 CORRIDOR

This study determined that there is a need to improve the US 60 corridor from the terminus of the Superstition Freeway to the US 60/SR 79 interchange at Florence Junction. Figure 24 illustrates the recommended US 60 Corridor Definition Concept. The concept includes a 6-lane US 60 freeway reroute generally paralleling existing US 60 from the end of the Superstition Freeway to just west of the current site of the Renaissance Festival. The freeway would be access controlled with access provided only at grade-separated interchanges spaced approximately one to two miles. The rerouted segment would remain as a state highway. The freeway reroute would then connect back to the existing US 60 corridor as a 4- to 6-lane access-controlled multilane highway with access provided at grade-separated interchanges spaced approximately two to three miles apart.

Recommendations for Implementation

- Conduct a Design Concept Report and Environmental Assessment to define the corridor alignment, facility cross-section, and interchange locations. The Design Concept Report and Environmental Assessment are currently identified in the ADOT Five Year Transportation Facilities Program.

- Preserve right-of-way now for both the US 60 reroute and the proposed improvement along the existing US 60 alignment in coordination with ADOT, Pinal County, Arizona State Lands, and private developers.

- Implement access management strategies on the designated currently access controlled US 60 from MP 205 to MP 212, Florence Junction. Coordination must begin now with ADOT, Pinal County, Arizona State Lands, and private developers to implement access management strategies.

- Connect the improved US 60 to a future arterial street system, state highway system, and the regional freeway system including the future extension of the Williams Gateway Freeway.

- Incorporate multimodal considerations for transit, pedestrians, and bicyclists into the improved US 60.

- Consider the access to the site of the Renaissance Festival in future studies.

REFERENCES

ADOT, *State Transportation Board Policies*, Revised 2003

ADOT, *Statewide Bicycle Pedestrian Plan*, 2003

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APPENDIX A. ARIZONA GAME & FISH DEPARTMENT LETTER DATED MARCH 4, 2005

THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
2221 WEST GREENWAY ROAD, PHOENIX, AZ 85023-4399
(602) 942-3000 • AZGFD.GOV

March 4, 2005

Ms. Sophie S. Cole
Lima & Associates
7250 N. 16th St.
Suite 300
Phoenix, AZ 85020

Re: Special Status Species Information for **US Route 60, Milepost 199.0 to Milepost 212.0; Proposed US 60 Corridor Study.**

Dear Ms. Cole:

The Arizona Game and Fish Department (Department) has reviewed your request, dated February 25, 2005, regarding special status species information associated with the above-referenced project areas. The Department's Heritage Data Management System (HDMS) has been accessed and current records do not indicate the presence of any special status species in the project vicinity (2-mile radius). In addition this project does not occur in the vicinity of any Designated or Proposed Critical Habitats.

The Department's HDMS data are not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity.

Making available this information does not substitute for the Department's review of project proposals, and should not decrease our opportunities to review and evaluate new project proposals and sites. The Department is also concerned about other resource values, such as other wildlife, including game species, and wildlife-related recreation. The Department would appreciate the opportunity to provide an evaluation of impacts to wildlife or wildlife habitats associated with project activities occurring in the subject area, when specific details become available.

If you have any questions regarding this letter, please contact me at (602) 789-3619. General status information and county distribution lists for special status species are also available on our web site at http://www.azgfd.gov/hdms, as well as species abstracts for some special status species.

Sincerely,

Ginger Ritter

Ginger L. Ritter
Heritage Data Management System, Data Specialist

SSS:glr

cc: Rebecca Davidson, Project Evaluation Program Supervisor
Russ Haughey, Habitat Program Manager, Region VI

AGFD# 03-01-05(14)

APPENDIX B. DATA

TABLE B-1. ACCESS POINTS AND TRAFFIC CONTROLS

Milepost (Approximate)	Side of Highway	Description	Traffic Control
199.0	West	Access to Old US 60 Highway	None (Ramp)
199.6	West	Mountain View Road	Traffic Signal
200.0	West	Silly Mountain Road, No Crossover	Stop Sign
200.5	None	Crossover only	NA
201.1	West	Driveway; No Crossover	None
201.2	West	Superstition Mountain Drive	Traffic Signal
201.3	West	Driveway; No Crossover	Stop Sign
201.4	West	Driveway; No Crossover	None
201.5	Both	EB Driveway; No Crossover WB Driveway; No Crossover	EB Non WB Stop Sign
201.6	East	Canyon Vista Way; No Crossover	Stop Sign
201.8	East	Driveway to Commercial Strip	None
201.95	West	Texaco Star Mart Driveway; No Crossover	None
202.0	Both	Mountainbrook Drive	Traffic Signal
202.3	East	Driveway; No Crossover	Stop Sign
202.7	West	Kings Ranch Road	Traffic Signal
203.3	None	Crossover only	NA
204.2	West	Peralta Trail	EB Yield Sign WB Stop Sign
204.7	None	Crossover only	NA
205.1	East	Driveway	Stop Sign
205.3	East	Driveway; No Crossover	Stop Sign
206.0	None	Crossover only	NA
206.5	None	Crossover Only	NA
207.0	Both	Driveways	None
207.4	None	Crossover Only	NA
207.5	West	Fenced Driveway; No Crossover	None
207.6	East	Driveway; No Crossover	None
207.7	West	Driveway; No Crossover	None
207.8	Both	WB Driveway to mobile home park EB Driveway to JP Trailer Sales	WB Stop Sign EB None
208.3	West	El Camino Viejo	Stop Sign
208.6	None	Crossover Only	NA
209.1	None	Crossover Only	NA
209.7	None	Crossover Only	NA
210.0	West	Driveway	None
210.2	None	Crossover Only	NA
210.8	West	Peckary Road – Queen Creek Gravel Plant; no crossover	Stop Sign
212.2	East	Driveway to Substation; No Crossover	None
212.2	Both	SR 79	None (Ramp)

Sources: Pinal County Planning Department (Aerials dated December 2003)
Lima & Associates Field Review

Note: Intersecting roads and driveways are accompanied by median crossovers unless noted otherwise

TABLE B-2. US 60 PAVEMENT CONDITION

Begin Milepost	End Milepost	Direction	Rate	Category
198	199	Eastbound	10.65	1
198	199	Westbound	10.54	1
199	200	Eastbound	15.47	2
199	200	Westbound	31.41	4
200	201	Eastbound	20.47	3
200	201	Westbound	45.87	4
201	202	Eastbound	16.44	2
201	202	Westbound	25.71	4
202	203	Eastbound	23.42	3
202	203	Westbound	29.03	4
203	204	Eastbound	22.90	3
203	204	Westbound	25.24	4
204	205	Eastbound	60.38	4
204	205	Westbound	32.76	4
205	206	Eastbound	26.03	4
205	206	Westbound	24.88	3
206	207	Eastbound	26.44	4
206	207	Westbound	25.02	4
207	208	Eastbound	26.94	4
207	208	Westbound	25.52	4
208	209	Eastbound	8.60	1
208	209	Westbound	10.95	1
209	210	Eastbound	8.18	1
209	210	Westbound	6.68	1
210	211	Eastbound	10.64	1
210	211	Westbound	5.38	1
211	212	Eastbound	NA	NA
211	212	Westbound	NA	NA

Source: ADOT Pavement Management Section (2003 data)